1995SHE01MTNS

DEMOGRAPHIC MONITORING OF PENSTEMON LEMHIENSIS IN SOUTHWEST MONTANA

FINAL REPORT

J. Stephen Shelly
USDA Forest Service, Region 1, and
Montana Natural Heritage Program
P.O. Box 7669
Missoula, Montana 59807

Bonnie L. Heidel
Montana Natural Heritage Program
1515 E. Sixth Avenue
Helena, Montana 59620

FOR

Beaverhead National Forest
420 Barrett Street
Dillon, MT 59725

U.S. Bureau of Land Management
P.O. Box 36800
Billings, MT 59107

October 1995

This document should be cited as follows: Shelly, J. S. and B. L. Heidel. 1995. Demographic monitoring of Penstemon lemhiensis in southwest Montana - final report. Unpublished report to Beaverhead National Forest and Bureau of Land Management. Montana Natural Heritage Program, Helena. 26 pp. plus appendices.

TABLE OF CONTENTS

TABLES AND FIGURES

I. INTRODUCTION

This report summarizes the final two years of monitoring results from six years of U.S. Forest Service demographic monitoring studies and four years of Bureau of Land Management demographic monitoring studies in populations of Lemhi penstemon (Penstemon lemhiensis) Demographic monitoring serves as a biological baseline that helps to identify critical life history stages (Schemske et al. 1994). It may also assist in identifying trends and management response questions.

Penstemon lemhiensis is a sensitive plant species that occurs in southwest Montana on the Beaverhead, Bitterroot and Deerlodge National Forests, and on the Dillon and Headwaters Resource Areas of the U.S. Bureau of Land Management. Three permanent transects were established in 1989 on the Beaverhead National Forest, and two permanent transects were established in 1991 on the Dillon Resource Area in two separate studies with parallel objectives. The Beaverhead National Forest monitoring results from 1989 through 1992 are discussed in earlier reports (Shelly 1990, Achuff and Shelly 1991, Shelly and Achuff 1992, Shelly and Heidel 1993), and the Dillon District monitoring results from 1991 and 1992 are discussed in earlier reports (Achuff 1992, Heidel and Shelly 1993). This final report pools and analyzes the last two years (1993, 1994) of demographic monitoring data with all earlier data from both monitoring studies.

II. SPECIES INFORMATION

A. REVIEW OF PRESENT STATUS

1. FEDERAL STATUS: Penstemon lemhiensis was designated as a Category 2 candidate for federal listing by the U.S. Fish and Wildlife Service (U.S. Department of Interior 1993). Category 2 taxa were defined as those "for which there is some evidence of vulnerability, but for which there are not enough data to support listing proposals at this time." Effective September, 1995, however, the USFWS has discontinued formal designation of Category 2 candidates. Species with conservation concerns will continue to be recognized informally by the USFWS as "plant species at risk," but a listing of these taxa will no longer appear in the Federal Register.

Penstemon lemhiensis is currently on the U.S. Forest Service Region 1 sensitive species list (U.S. Department of Agriculture 1994). Sensitive species are "plant and animal species identified by the Regional Forester for which population viability is a concern, as evidenced by: a.) significant current or predicted downward trends in population numbers or density, and/or b.) significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution" (U.S. Forest Service Manual, Ch. 2670).

Penstemon lemhiensis is also on the Bureau of Land Management list of sensitive species for Montana (D. Heinze pers. commun.).

2. GLOBAL AND STATE STATUS: With respect to its rangewide status, Penstemon lemhiensis is currently ranked G3 ("vulnerable because of rarity or found in a restricted range") by The Nature Conservancy. In Montana, it is currently ranked as S2 ("imperiled in the state because of rarity, or because of other factors demonstrably making it very vulnerable to extirpation") by the Montana Natural Heritage Program (Heidel 1995). This is usually reserved for plant species known from 6-20 occurrences. However, this species has been observed to be declining in many of its largest

populations, a portion of the occurrences are "D-ranked" occurrences thought to represent spurious colonization in disturbance settings, and it thought that most or all occurrences may be interdependent in some form as small sets of "metapopulations."

It has also been informally designated as a "threatened" species in Montana (Lesica and Shelly 1991); a "threatened" species is defined therein as one that is "likely to become endangered throughout all or a significant part of its range in Montana in the foreseeable future. Specific threats to known populations of these plants have been identified."

These state and global rankings do not provide any legal protection for P. lemhiensis.

B. UPDATE OF GEOGRAPHICAL DISTRIBUTION IN MONTANA

Penstemon lemhiensis is a regional endemic known to occur in Beaverhead, Deer Lodge, Ravalli, and Silver Bow counties in Montana; plus Lemhi County in Idaho. Twenty-five new populations of the species were discovered in Montana during 1993-1995; the majority are on Bitterroot National Forest. The total number of known element occurrences in the state is now 77. As mentioned above, population numbers for this species are not static. Among the occurrence records are revisited ones which have waned or died out, and ones which have not been revisited. All new, pre-existing or modified Montana occurrences of Penstemon lemhiensis are presented in Appendix B.

C. POPULATION DEMOGRAPHY

The three permanent monitoring transects established on Beaverhead National Forest lands in 1989 were re-read on 28-29 July 1993 and 15-16 August 1994, using the methods described in a previous report (Shelly 1990). The two permanent monitoring transects established on the Dillon District of the Bureau of Land Management in 1991 were re-read on 29 July 1993 and 16 August 1994 using the methods described in a previous report (Achuff 1992), with an additional late visit in the 1993 field season to determine fruit production. A system of tracking marked plants had previously been established in 1990 at one of the BLM sites, and was also re-read at these times. The population and fecundity data for 1989-1994 (USFS) and 1991-1994 (BLM) are summarized in Table 1. The numbers of individual plants in seedling, fruiting and non-fruiting stages in each transect over the monitoring periods are displayed in Figures 1-5.

1. U.S. FOREST SERVICE TRANSECTS

1993: Increases in the number of plants as compared to 1992 occurred in all three study transects in 1993; the total number of plants in all three transects was 166. This total reflects the first increase in the number of plants encountered during the study, which had otherwise declined from 240 total plants in 1989, 215 in 1990, and 115 in 1991, to 78 in 1992. The increase in the total number of plants observed in 1993 compared to 1992 was +113%.

The total number of plants in the French Creek - Park Mine transect increased by 14 (+78%) from the 1992 total; this is the first increase that has been observed in this transect during the course of the study. For the first time since 1990, there were fruiting plants present in the transect; these were very fecund, as well, producing an average of 83 fruits per plant (Figure 6). In addition, a flush of seedlings appeared in 1993 (Figure 7) while the total number of mature individuals remained stable (Figure 8). These responses

undoubtedly reflect the cool, moist spring and summer of that year, in contrast to the typically dry years that occurred through 1992. Monthly growing season precipitation totals are depicted for the nearest monitoring station at Dillon between 1987-1992 (1993 data unavailable; Appendix C), and for other surrounding communities between 1987-1994 (Appendix D-G; Butte, Darby, Jackson and Wisdom). The latter show a net growing season precipitation increase in 1993 of app. 15-45% relative to the average with exceptionally high rainfall in June during peak vegetative growth of the species. Monthly maximum monthly growing season temperatures were consistently low in 1993 compared to other years (Appendix H. 1987-1993 Mean maximum temperatures in Darby; Appendix I. 1987-1993 Mean maximum temperatures in Wisdom).

The French Creek - Discovery Mine transect also showed an increase in 1993. The total number of plants increased by 18 (+40%; Figure 8). Unlike the other two transects, however, no fruits were observed at the Discovery Mine transect this year (Figure 6), because all of the plants were browsed (Figure 9). Survival of seedlings that appeared in 1992 was high (Figure 10). As theorized earlier, a possible reason for the survival of these seedlings, in addition to the appearance of 25 new plants this year, may be that this transect lies along a small draw, which probably provides for increased moisture and protection during drier conditions. This may also partially explain why the numbers of plants sampled in this transect have remained much more stable over the last four years than in either of the other Forest Service transects (Shelly and Heidel 1993).

The total number of plants sampled in 1993 in the Badger Pass North transect showed by far the greatest increase compared to 1992 levels of any of the transects. This increase is accounted for by an exceptional flush of seedlings that appeared (Figure 7), again likely a reflection of the cool, moist conditions in 1993; 67 seedlings or new plants were observed. The decline in established plants continued, however; six of the 19 established plants present in 1992 perished in 1993. The net increase for this transect in 1993 was a remarkable +295%. As in the French Creek - Park Mine transect, two plants flowered, in this case for the first time since 1991; however, these two plants produced an average of only 24 fruits each (Figure 6).

As in the past, no evidence of severe surface or vegetation disturbance was noted at any study site in 1993.

1994: Increases in the number of plants as compared to 1993 occurred in just one of the three transects in 1994; the total number of plants in all three transects was 104. This total reflects a drastic decrease from the previous year, although it is still greater than the lowest number observed (78 plants in 1992); most of this decrease was accounted for by the loss of nearly all of the seedlings that appeared in 1993 at the Badger Pass North transect (Figure 9). The decrease in the total number of plants observed in 1994 was -37% compared to 1993. This overall decrease is undoubtedly a reflection of the return of very hot, dry weather during 1994.

The total number of plants in the French Creek - Park Mine transect increased by eight (+25%) from the 1993 total. This was a result of ten of the 16 seedlings that appeared in 1993 surviving (while two established plants perished). Fruiting, albeit of only two plants, also occurred again in 1994, with an average of 53 fruits per plant. As in 1993, a flush of seedlings appeared again in 1994. These responses are interesting considering that 1994 was once again a very hot, dry season; there may have been a "carry-over effect" from the cool, moist season in 1993 that resulted in increased survival, as well as another flush of seedlings.

For the first time since 1991, the French Creek - Discovery Mine transect showed a decrease in the total number of plants from the previous year, from 59 to 57; this represented a very minor decline, however, of only -3.4% (Figure 2). Thirteen of the 25 seedlings or new plants that appeared in 1993 survived in 1994, but a smaller number of seedlings appeared in 1994 as compared to 1993 (16 and 25, respectively). Unlike 1993, there was a fruiting plant present in 1994, which produced 19 fruits.

After a remarkable flush of seedlings appeared in 1993, the Badger Pass North transect saw a drastic decline in 1994, as nearly the entire 1993 seedling class was lost (64 out of 67 plants; Figure 9). In addition, four of the eight established plants perished, resulting in a -91% decrease in the total number of plants as compared to 1993. These losses are again most likely a result of the return of hot, dry climatic conditions in 1994. One plant did flower in this transect in 1994, but no fruits were produced. With the exception of a prolific seedling flush in 1993, Badger Pass North has shown the least resilience of the three Forest Service transect populations to recover from the prevailing drought conditions over the course of the six-year study. The reasons for this are not transparent since, as in past years, there was no evidence of heavy grazing or other severe disturbance at this site.

The existence of viable seedbanks is verified, as revealed by the presence of seedlings, sometimes abundantly, following years of no flowering and fruiting; this occurred at Badger Pass North in 1993, Discovery Mine in 1992 and 1994, and Park Mine in 1992 and 1993. The long-term viability of these seedbanks remains unknown, and is a missing link in reconstructing the matrix transition model for the species.

1995: The Badger Pass North transect was reread in conjunction with new management response research to evaluate the effectiveness of prescribed burning treatments on-site. All of the seedlings that established in 1993 had died by 1995. Survivorship among the plants present in 1989 was 5% in 1995.

2. BUREAU OF LAND MANAGEMENT TRANSECTS

1993: The total number of plants increased in one of the two transect sites, at the Badger Pass Microwave site. Its numbers totalled 53 with the addition of 15 seedlings (140% increase), accompanied by a stable number of mature plants. These were the only seedlings to appear at the Microwave transect during the four years of monitoring. The total number of plants in the Horse Prairie transect declined to 64% of its previous numbers despite a major increase in the number of fruiting to non-fruiting plants in the previous growing season. It had only 3 seedlings.

While the number of Badger Pass Microwave fruiting plants remained steady in 1993, there were no fruits produced because of high levels of browse in the exclosure. The Horse Prairie fruiting plant numbers skyrocketed (Figure 11), resulting in fair fruit production (Figure 6) in spite of browse (Figure 9). The synchrony in fruit production supports the hypothesis that the population was recently established as a single cohort in its disturbance setting, a synchronized one-time establishment event and short-duration seed source compared to the population sites in natural settings.

These responses are likely to reflect the cool, moist spring and summer of that year, in contrast to the typically dry years that occurred through 1992 (discussed above). Monthly growing season precipitation totals are depicted for the nearest monitoring station at Dillon between 1987-1992 (1993 data unavailable; Appendix C), and for other surrounding communities between 1987-1994 (Appendix D-G; Butte, Darby, Jackson and

Wisdom). The latter show a net growing season precipitation increase in 1993 of app. 15-45% relative to the average.

1994: The Microwave mature plant numbers increased slightly with 2 additional plants for a total of 40 (105% increase; Figure 8). The Horse Prairie mature plant numbers dropped further with loss of 13 plants for a total of 10 plants (43% decrease). No seedlings were produced this year at either site (Figure 7). Seedling survival from the previous year was low at the Microwave site, and there was no survival at Horse Prairie (Figure 10).

1995: The Badger Pass Microwave transect was reread in conjunction with new management response research to evaluate the response to prescribed burn treatments on-site. The population structure remained stable, and the previously high levels of browse almost disappeared.

III. ASSESSMENT AND CONCLUSIONS

Overall transect trends. Overall transect trends are presented in Figure 8, which shows the total number of mature plants per transect over time on a single graph.
Three transects have overall decline (Badger Pass North, French Creek - Park Mine, and Horse Prairie), while two transects are stable (Badger Pass Microwave and French Creek - Discovery Mine). The Forest Service transects where decline occurred are also the ones that had the largest initial total numbers of individuals, an important factor in retaining the "S2" state rank for Penstemon lemhiensis. The same trends in total number of plants per transect are reflected in the trends of plant density (Figure 12).

We did not design the sampling to monitor population trend, but the transects were laid in areas where the highest initial population densities were to be found. We observed that the overall pattern within the transect reflects the surrounding changes in numbers, so that they serve for preliminary population trend inference. We note that trends differ for sites that are located close to one another within 5 km (Badger Pass transect pairs, French Creek transect pairs).

We cannot project these transect trends across the species' range in Montana without making hypotheses about the relationship between the transects to the species across its range. This requires interpretation of species' habitat requirements, and interpretation of the relationship between occurrences - these are presented at the end of this section.

The surge in seedling numbers during 1993 (Figure 7) suggests that, in years when climate conditions are more amenable, populations of P. lemhiensis can begin to recover from previous declines. But the level of recovery at the two declining Forest Service sites to date has been a rebound which is still less than half of the original numbers.

The continued precarious status of numerous occurrences on Forest Service and Bureau of Land Management lands suggests that Penstemon lemhiensis should remain on the sensitive species lists for Regions 1 and 4 of the U.S. Forest Service and for the Montana Office of the Bureau of Land Management. It is also recommended that P. lemhiensis be recognized as a "plant species at risk" by the U.S. Fish and Wildlife Service.

Seedling stage. The most critical life history stage for this species is seedling establishment, seedling survival and rosette survival. A total of 192 seedling plants were observed at five sites during the 4-6 years of monitoring. None matured to become fruit-producing plants and nearly all died during the monitoring period.

The 1989 seedling class at the French Creek - Discovery Mine included 12 seedlings and was the largest initial seedling class among seedling classes in the baseline years. They had an average life span of 1.6 growing season over the six year period. The longest-lived individual survived to the fourth growing season before it died. This transect also had the most stable number of seedlings per transect each year (Figure 7), and lies along a small draw, which probably provides for increased moisture and protection during drier conditions. It also had consistently high seedling survival between years (Figure 10), though survival of established plants was only fair (Figure 14). It represented a relatively mesic microhabitat where moisture collects along a gully.

By contrast, the Badger Pass North site had the most unstable seedling numbers, with little or no seedling establishment most years, and an explosion of seedling establishment in the moist 1993 growing season (Figure 7), most of which did not survive. Badger Pass North has dense cover of Artemisia tridentata, a typical sagebrush foothills landscape setting for the species. We have tentatively identified competition as a factor which limited recovery at this site.

Horse Prairie also had unstable seedling numbers. It is in an "unnatural" setting, the scraped outer slope of a roadside right-of-way. It appears that the excessively unstable, barren habitat of the Horse Prairie site precluded recovery.

Population structure. Differences in population structure are also evident between sites. Most transect sample sets became more and more dominated by smaller plants over time, except for the Badger Pass Microwave transect. It is also the most sheltered of transect settings, with scattered tree cover that slows moisture loss during the season, and helps retain snow cover.

We tracked the number of rosettes per individual for all flowering and non-flowering plants. Only non-flowering plants had single rosettes. The one-rosette growth form seems to be a clearinghouse stage which can precede or follow any other stage, so that the trend in single rosette plants (Figure 13) is difficult to access without further transition analysis.

Mortality. Mortality among established plants was highest at all populations in 1991 and 1992. Both years had exceptionally high mean monthly temperatures for at least two of the three months of the growing season compared to other years in the period (see Appendix I). Precipitation was low in both years. Overall, mortality was usually highest in the smaller class plants (1-3 rosette plants). Larger plants also died during the monitoring period.

Mortality was usually highest at Badger Pass North. It had the highest mortality among established plants (rosettes + flowering plants) in four of the five years (Figure 8).

Longevity. Plants can survive at least six years, and in some populations many of the original plants measured when the monitoring transects were established remained alive throughout the monitoring period. Longevity differs greatly between sites. For example, only 1 out of 105 plants survived for six years at Badger Pass north, while 27 out of 31 plants survived at Badger Pass Microwave over four years.

Reproductive effort. Highest fruit production for Penstemon lemhiensis occurred in 1993 following the wet growing season year (Figure 6) for all plots except those with high browse. This species goes back-and-forth between flowering and non-flowering states from year-to-year. None of the plants that flowered in 1989 survived through the six year monitoring period, and few flowered more than twice. Only 16 plants that were originally rosettes (7% of the 1989 total) survived the entire six year period. This is interpreted to mean that Penstemon lemhiensis has episodic flowering.

Percent of reproductive plants ranged from 0-74%. It was relatively constant at the Badger Pass Microwave site, and variable from year-to-year at the other sites. Larger plants were more likely to be reproductive, with the perrcentage of reproductive individuals in the 7+ rosette size class over 50% and often over 80%. The average number of inflorescences per plant for all years and all sites was mostly under 2.5 infloresences per flowering plant.

The proportion of fruit-producing plants was consistently high among the set of marked plants at the Badger Pass Microwave tower site compared to the overlapping transect sample set and transect sample sets at all other sites (Figure 11). This points to the skewedness of tracking marked plants for gleaning demographic data when not all of the plants in a given area were marked originally.

Average number of fruit per inflorescence was mostly less than 20. Many flowers failed to produce fruit, which may reflect a lack of pollinators, or a lack of resources during drought years. The failed flower rate was generally over 50%, often over 70%.

The average length of time to first flowering could not be calculated because none of the 192 seedlings that were observed had flowered. We know that it takes a minimum of three years to go from seedling -> rosette -> flowering plant stages, but there may be more than one rosette stage, or at least more than one year required of rosette growth. We may be able to determine the average length of time by following the 1993 seedling class.

Three of the five sites had episodic browse which removed over 50% of the infloresences (Figure 9). Among them was the Badger Pass Microwave livestock exclosure site where only wildlife could enter, indicating that browsing by wildlife is a major contributing factor. Both the driest and wettest growing seasons had years of high browse, so there is no apparent correlation with moisture and parallel forage availability.

Conclusion. The sample size numbers and high degree of variation from year to year are analytical constraints which argue all the more strongly for pooling the data analyses in these two studies with similar objectives. The Bureau of Land Management transects also complement the U.S. Forest Service transects in their settings. The Microwave transect has had the most stable population numbers. It is comparatively sheltered and cool. The Horse Prairie transect is the only "unnatural" setting, and was almost devoid of seedling establishment unlike all other transects. It has proven impossible to relocate individual plants with certainty in the unstable setting, so demographic data cannot be gleaned from it although it provides useful preliminary trend data.

In the course of mapping Penstemon lemhiensis distribution and monitoring select population segments, we have documented contrasting transect trends within two locales (Badger Pass, French Creek). Microhabitats that correspond with moisture accumulation and cool, low-competition settings support relatively low numbers of Penstemon

lemhiensis, but their numbers are relatively stable. Dry, high-competition settings support relatively high numbers, but their numbers are unstable.

We postulate that core subpopulations in the most suitable habitat are unstable under natural climate oscillations in the absence of natural disturbance to create habitat for establishment and recruitment. Marginal habitat with small subpopulations provides a seed source for new core populations, which in turn provide an episodic seed source for new marginal populations. Habitat continuity between core and marginal habitat is relatively intact in Beaverhead County where these studies were conducted, but the natural disturbance regime in core habitat has been curtailed in post-settlement fire control. Climatic variability appears to exacerbate the affect. If this model is accurate, then we would expect a downward spiral effect with continued net decline in species numbers.

Preparation of a rangewide conservation strategy for this species is in the final stages as of this writing. This strategy will provide management recommendations, and identify critical populations, for P. lemhiensis throughout its geographic range in southwest Montana and adjacent Idaho.

IV. FUTURE STUDIES AND RECOMMENDATIONS

In 1995, studies to examine the response of Penstemon lemhiensis to prescribed burn management were initiated. Three sites were selected for controlled burn treatment (two on Beaverhead National Forest lands including the Badger Pass North site, and one on BLM-Dillon District lands at the Badger Pass Microwave site). Macroplots were also established to gather pre-burn census data. Controlled burning is currently planned on one of the macroplots in 1995, and the remainder in 1996 (with on-site controls).

Reinstating demographic monitoring at the other two French Creek transects is recommended for its value as part of the longest-running Penstemon lemhiensis monitoring.

In conjunction with the Montana Natural Heritage Program, Dr. Susan Meyer (Intermountain Research Station, Provo, Utah) has agreed to conduct seed germination tests for P. lemhiensis. Viability, germination response with/without cold treatment, and germination responses to variation in temperature and light will be included, to be modeled after earlier work on the genus Penstemon (Meyer 1995). Seeds from three locations will be analyzed, including low- and high-elevation sites in Ravalli and Beaverhead counties, Montana, respectively. The possibility of a study to assess long-term seed viability is also being initiated by the Montana Natural Heritage Program.

TRANSECT	FCPM						FCDM						BPN					
No. of plots	25						25						50					
Year	1989	1990	1991	1992	1993	1994	1989	1990	1991	1992	1993	1994	1989	1990	1991	1992	1993	1994
# plants/ transect	84	58	28	18	18	36	35	37	31	27	42	43	105	103	48	17	9	6
# seedlings transect	4	4	1	0	14	4	0	10	4	15	16	12	13	6	1	2	66	0
total # of plants / transect	88	62	29	18	32	40	35	47	35	42	58	55	118	109	49	19	75	6
density (plants/m2)	3.5	2.5	1.2	0.7	1.3	1.6	1.4	1.9	1.4	1.7	2.3	2.2	2.4	2.2	1.0	0.4	1.5	0.1
# new plants / transect (R1 and C1)	NA	2	2	1	2	11	NA	4	0	6	8	3	NA	2	1	1	1	0
# of new plants / transect (>R1)	NA	4	0	0	0	1	NA	0	0	1	0	1	NA	4	0	1	0	0
total recruitment	4	10	3	1	16	16	0	14	4	22	24	16	13	12	2	4	67	0
# estab. plants not surviving	NA	32	35	14	2	2	NA	2	11	15	4	11	NA	12	58	33	9	5
% of established plants not surviving	NA	38.1	60.3	50.0	11.1	11.1	NA	5.7	29.7	48.4	14.8	26.2	NA	11.4	56.3	68.8	52.9	55.6
# of one-rosette plants not surviving	NA	11	14	6	2	2	NA	0	3	6	4	9	NA	2	18	10	6	2
# of 2-3 rosette plants not surviving	NA	13	15	5	0	0	NA	1	5	5	0	1	NA	6	17	11	2	2
# of 4-6 rosette plants not surviving	NA	5	5	1	0	0	NA	0	3	4	0	0	NA	5	14	8	0	1
# of 7+ rosette plants not surviving	NA	3	0	NA	NA	NA	NA	1	0	NA	NA	NA	NA	0	8	4	1	NA
# of reproductive plants not surviving	NA	15	5	NA	NA	0	NA	1	0	NA	0	0	NA	5	35	11	NA	0
% of 1 rosette plants not surviving	NA	40.7	77.8	75.0	16.7	16.7	NA	0.0	33.3	50.0	23.5	26.5	NA	12.5	78.3	76.9	75.0	40.0
% of 2-3 rosette plants not surviving	NA	56.5	57.7	41.7	0.0	0.0	NA	9.1	35.7	55.6	0.0	16.7	NA	18.2	56.7	78.6	28.6	100.0
% of 4-6 rosette plants not surviving	NA	25.0	45.5	12.5	0.0	0.0	NA	0.0	25.0	66.7	0.0	0.0	NA	13.9	51.9	66.7	0.0	50.0
% of 7+ rosette plants not surviving	NA	21.4	0.0	NA	NA	NA	NA	50.0	0.0	NA	NA	NA	NA	0.0	34.8	44.4	100.0	NA
% of reproductive plants not surviving	NA	48.4	33.3	NA	NA	0.0	NA	6.3	0.0	NA	0.0	0.0	NA	20.8	63.6	84.6	NA	0.0
# seedlings surviving from the previous year	NA	1	2	1	NA	8	NA	NA	5	4	11	8	NA	5	1	0	0	2
% of seedlings surviving	NA	25.0	50.0	100.0	NA	57.1	NA	NA	50.0	100.0	73.3	50.0	NA	38.5	16.7	0.0	0.0	3.0
# reproductive plants / transect	31	15	0	0	3	2	16	25	0	3	1	1	24	55	13	0	2	1
% reproductive plants	36.9	25.9	0.0	0.0	16.7	5.6	45.7	67.6	0.0	11.1	2.4	2.3	22.9	53.4	27.1	0.0	22.2	16.7
total # inflorescences	58	26	0	0	3	2	30	53	0	3	1	1	68	107	15	0	2	1
average # inflorescences/ reproductive plant	1.9	1.7	0.0	0.0	1.0	1.0	1.9	2.1	0.0	1.0	1.0	1.0	2.8	1.9	1.2	0.0	1.0	1.0
# of flowering stems browsed	13	1	NA	NA	0	1	19	9	NA	0	1	0	1	3	4	NA	1	0
% flowering stems browsed	22.4	3.8	NA	NA	0.0	50.0	63.3	17.0	NA	0.0	100.0	0.0	1.5	2.8	26.7	NA	50.0	0.0
# of plants with only aborted flowers	NR	0	NA	NA	0	0	NR	1	NA	0	NA	0	0	0	0	NA	NA	1
# aborted flowers	NR	498	NA	NA	0	90	NR	918	NA	23	NA	33	485	1996	116	NA	NA	9
ave # aborted flowers per inflorescence	NR	19.2	NA	NA	0.0	45.0	NR	17.3	NA	7.7	NA	33.0	7.1	18.7	7.7	NA	NA	9.0
% aborted flowers	NR	70.8	NA	NA	0.0	45.9	0.0	70.2	NA	69.7	NA	63.5	52.4	67.4	76.3	NA	NA	100.0
# plants fruiting/ transect	29	14	0	0	3	2	8	24	0	3	0	1	23	49	9	0	2	0
% plants fruiting	34.5	24.1	0.0	0.0	16.7	5.6	22.9	64.9	0.0	11.1	0.0	2.3	21.9	47.6	18.8	0.0	22.2	0.0
# fruits/ transect	479	205	0	0	249	106	96	390	0	10	0	19	441	967	36	0	48	0
# fruit predated	NR	NR	NA	NA	NR	NR	NR	NR	NA	NR	NR	NR	NR	NR	36	NA	NR	NR

Table 1. Population and fecundity data

TRANSECT	FCPM						FCDM						BPN					
No. of plots	25						25						50					
Year	1989	1990	1991	1992	1993	1994	1989	1990	1991	1992	1993	1994	1989	1990	1991	1992	1993	1994
mean # fruits per fruiting plant	16.5	14.6	0.0	0.0	83.0	53.0	12.0	16.3	0.0	3.3	0.0	19.0	19.2	19.7	4.0	0.0	24.0	0.0
mean # fruits/ inflorescence	8.3	7.9	0.0	0.0	83.0	53.0	3.2	7.4	0.0	3.3	0.0	19.0	6.5	9.0	2.4	0.0	24.0	0.0
# of plants with 1 rosette	27	18	8	12	12	26	8	9	12	17	34	33	16	23	13	8	5	3
# of reproductive plants with 1 rosette	3	1	0	0	1	0	0	3	0	1	0	0	2	6	0	0	0	0
# of plants with 2-3 rosettes	23	26	12	4	5	5	11	14	9	7	6	8	33	30	14	7	2	3
# of reproductive plants with 2-3 rosettes	7	3	0	0	2	1	3	10	0	1	0	1	4	14	5	0	1	1
# of plants with 4-6 rosettes	20	11	8	2	1	5	14	12	6	3	2	2	36	27	12	1	2	0
# of reproductive plants with 4-6 rosettes	9	9	0	0	0	1	11	10	0	1	1	0	12	17	3	0	1	0
# of plants with 7-10 rosettes	12	2	0	0	0	0	2	1	4	0	0	0	17	15	4	1	0	0
# of reproductive plants with 7-10 rosettes	11	1	0	0	0	0	2	1	0	0	0	0	6	10	2	0	0	0
# of plants with >10 rosettes	2	1	0	0	0	0	0	1	0	0	0	0	3	8	5	0	0	0
# of reproductive plants with >10 rosettes	1	1	0	0	0	0	0	1	0	0	0	0	0	8	3	0	0	0
% total plants with 1 rosette	32.1	31.0	28.6	66.7	66.7	72.2	22.9	24.3	38.7	63.0	81.0	76.7	15.2	22.3	27.1	47.1	55.6	50.0
% plants with 2-3 rosettes	27.4	44.8	42.9	22.2	27.8	13.9	31.4	37.8	29.0	25.9	14.3	18.6	31.4	29.1	29.2	41.2	22.2	50.0
%plants with 4-6 rosettes	23.8	19.0	28.6	11.1	5.6	13.9	40.0	32.4	19.4	11.1	4.8	4.7	34.3	26.2	25.0	5.9	22.2	0.0
% plants with 7-10 rosettes	14.3	3.4	0.0	0.0	0.0	0.0	5.7	2.7	12.9	0.0	0.0	0.0	16.2	14.6	8.3	5.9	0.0	0.0
% plants with >10 rosettes	2.4	1.7	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	2.9	7.8	10.4	0.0	0.0	0.0
% 1-rosette plants, reproductive	11.1	5.6	0.0	0.0	8.3	0.0	0.0	33.3	0.0	5.9	0.0	0.0	12.5	26.1	0.0	0.0	0.0	0.0
% of 2-3 rosette plants, reproductive	30.4	11.5	0.0	0.0	40.0	20.0	27.3	71.4	0.0	14.3	0.0	12.5	12.1	46.7	35.7	0.0	50.0	33.3
% of 4-6 rosette plants, reproductive	45.0	81.8	0.0	0.0	0.0	20.0	78.6	83.3	0.0	33.3	50.0	0.0	33.3	63.0	25.0	0.0	50.0	NA
% of >7 rosette plants, reproductive	85.7	66.7	NA	NA	NA	NA	100.0	100.0	0.0	NA	NA	NA	30.0	78.3	55.6	0.0	NA	NA
% of reproductive plants with 1 rosette	9.7	6.7	0.0	0.0	33.3	0.0	0.0	12.0	NA	33.3	0.0	0.0	8.3	10.9	0.0	0.0	0.0	0.0

TRANSECT	BPM					BPM, MARKED PLANTS						HPRA			
No. of plots	20					20						20			
Year	1991	1992	1993	1994	1995	1990	1991	1992	1993	1994	1995	1991	1992	1993	1994
# plants/ transect	31	38	38	40	39	34	38	37	37	37	35	37	36	23	10
# seedlings transect	0	0	15	0	3	NA	NA	NA	NA	NA	NA	2	0	3	0
total # of plants / transect	31	38	53	40	42	34	38	37	37	37	35	39	36	26	10
density (plants/m2)	1.6	1.9	2.7	2.0	2.1	NA	NA	NA	NA	NA	NA	2.0	1.8	1.3	0.5
# new plants / transect (R1 and C1)	NA	8	1	0	0	NA	NA	NA	NA	NA	NA	NA	5	NA	NA
# of new plants / transect (>R1)	NA	3	0	0	1	NA	NA	NA	NA	NA	NA	NA	7	NA	NA
total recruitment	0	11	16	0	4	NA	NA	NA	NA	NA	NA	2	12	NA	NA
# estab. plants not surviving	NA	3	1	1	2	NA	2	1	0	0	2	NA	12	NA	NA
% of established plants not surviving	NA	9.7	2.6	2.6	5.0	NA	5.9	2.6	0.0	0.0	5.4	NA	32.4	NA	NA
# of one-rosette plants not surviving	NA	2	1	1	2	NA	1	0	0	0	1	NA	2	NA	NA
# of 2-3 rosette plants not surviving	NA	1	0	0	0	NA	0	0	0	0	0	NA	7	NA	NA
# of 4-6 rosette plants not surviving	NA	0	0	0	0	NA	1	0	0	0	0	NA	1	NA	NA
# of 7+ rosette plants not surviving	NA	0	0	0	0	NA	0	1	0	0	1	NA	2	NA	NA
# of reproductive plants not surviving	NA	0	0	0	0	NA	0	0	0	0	1	NA	2	NA	NA
% of 1 rosette plants not surviving	NA	20.0	6.7	9.1	15.4	NA	20.0	0.0	0.0	0.0	14.3	NA	12.5	NA	NA
% of 2-3 rosette plants not surviving	NA	10.0	0.0	0.0	0.0	NA	0.0	0.0	0.0	0.0	0.0	NA	46.7	NA	NA
% of 4-6 rosette plants not surviving	NA	0.0	0.0	0.0	0.0	NA	7.1	0.0	0.0	0.0	0.0	NA	100.0	NA	NA
% of 7+ rosette plants not surviving	NA	0.0	0.0	0.0	0.0	NA	0.0	10.0	0.0	0.0	11.1	NA	40.0	NA	NA
% of reproductive plants not surviving	NA	0.0	0.0	0.0	0.0	NA	0.0	0.0	0.0	0.0	4.2	NA	50.0	NA	NA
# seedlings surviving from the previous year	NA	NA	NA	3	NA	NA	NA	NA	NA	NA	NA	NA	0	NA	NA
% of seedlings surviving	NA	NA	NA	20.0	NA	NA	NA	NA	NA	NA	NA	NA	0.0	NA	NA
# reproductive plants / transect	16	10	9	18	15	18	21	18	16	24	25	4	3	17	5
% reproductive plants	51.6	26.3	23.7	45.0	38.5	52.9	55.3	48.6	43.2	64.9	71.4	10.8	8.3	73.9	50.0
total # inflorescences	15	18	11	29	34	25	26	34	30	45	63	12	12	32	13
average # inflorescences/ reproductive plant	0.9	1.8	1.2	1.6	2.3	1.4	1.2	1.9	1.9	1.9	2.5	3.0	4.0	1.9	2.6
# of flowering stems browsed	6	11	8	12	0	5	6	5	11	11	3	4	12	0	5
% flowering stems browsed	40.0	61.1	72.7	41.4	0.0	20.0	23.1	14.7	36.7	24.4	4.8	33.3	100.0	0.0	38.5
# of plants with only aborted flowers	0	2	NR	4	0	0	0	1	NR	8	2	0	3	5	2
# aborted flowers	305	75	NR	444	461	370	723	294	NR	830	1377	144	6	1014	463
ave # aborted flowers per inflorescence	20.3	4.2	NR	15.3	13.6	14.8	27.8	8.6	NR	18.4	21.9	12.0	NA	31.7	35.6
% aborted flowers	71.9	81.5	NR	91.5	58.0	66.1	75.9	60.9	NR	91.8	72.6	28.4	100.0	66.9	99.1
# plants fruiting/ transect	17	5	3	10	15	16	17	17	10	13	23	3	0	12	3
% plants fruiting	54.8	13.2	7.9	25.0	38.5	47.1	44.7	45.9	27.0	35.1	65.7	8.1	0.0	52.2	30.0
# fruits/ transect	119	17	NR	41	334	190	230	189	NR	74	519	363	0	502	4
# fruit predated	NR	NR	NR	NR	NR	NR	1	NR	NR	NR	NR	1	NR	NR	NR

TRANSECT	BPM					BPM, MARKED PLANTS						HPRA			
No. of plots	20					20						20			
Year	1991	1992	1993	1994	1995	1990	1991	1992	1993	1994	1995	1991	1992	1993	1994
mean # fruits per fruiting plant	7.0	3.4	NR	4.1	22.3	11.9	13.5	7.0	NR	5.7	22.6	121.0	0.0	41.8	1.3
mean # fruits/ inflorescence	7.9	0.9	NR	1.4	9.8	7.6	8.8	5.6	NR	1.6	8.2	30.3	0.0	15.7	0.3
# of plants with 1 rosette	10	15	11	13	12	5	6	6	6	7	4	16	13	3	4
# of reproductive plants with 1 rosette	2	2	1	3	0	0	2	2	1	4	2	0	1	0	0
# of plants with 2-3 rosettes	10	11	11	9	10	10	11	12	13	10	11	15	16	3	3
# of reproductive plants with 2-3 rosettes	3	2	2	4	3	7	4	3	5	6	5	0	0	2	2
# of plants with 4-6 rosettes	5	8	11	11	9	14	11	11	9	11	8	1	5	10	3
# of reproductive plants with 4-6 rosettes	5	5	3	7	5	7	7	8	4	8	7	0	0	8	3
# of plants with 7-10 rosettes	4	3	4	7	7	3	5	5	6	8	9	2	0	4	0
# of reproductive plants with 7-10 rosettes	4	0	3	4	7	2	4	2	4	5	9	2	0	4	0
# of plants with >10 rosettes	1	1	1	0	1	2	5	3	3	1	3	3	2	3	0
# of reproductive plants with >10 rosettes	1	1	0	0	0	2	4	3	2	1	2	2	2	3	0
% total plants with 1 rosette	32.3	39.5	28.9	32.5	30.8	14.7	15.8	16.2	16.2	18.9	11.4	43.2	36.1	13.0	40.0
% plants with 2-3 rosettes	32.3	28.9	28.9	22.5	25.6	29.4	28.9	32.4	35.1	27.0	31.4	40.5	44.4	13.0	30.0
%plants with 4-6 rosettes	16.1	21.1	28.9	27.5	23.1	41.2	28.9	29.7	24.3	29.7	22.9	2.7	13.9	43.5	30.0
% plants with 7-10 rosettes	12.9	7.9	10.5	17.5	17.9	8.8	13.2	13.5	16.2	21.6	25.7	5.4	0.0	17.4	0.0
% plants with >10 rosettes	3.2	2.6	2.6	0.0	2.6	5.9	13.2	8.1	8.1	2.7	8.6	8.1	5.6	13.0	0.0
% 1-rosette plants, reproductive	20.0	13.3	9.1	23.1	0.0	0.0	33.3	33.3	16.7	57.1	50.0	0.0	7.7	0.0	0.0
% of 2-3 rosette plants, reproductive	30.0	18.2	18.2	44.4	30.0	70.0	36.4	25.0	38.5	60.0	45.5	0.0	0.0	66.7	66.7
% of 4-6 rosette plants, reproductive	100.0	62.5	27.3	63.6	55.6	50.0	63.6	72.7	44.4	72.7	87.5	0.0	0.0	80.0	100.0
% of >7 rosette plants, reproductive	100.0	25.0	60.0	57.1	87.5	80.0	80.0	62.5	66.7	66.7	91.7	80.0	100.0	100.0	NA
% of reproductive plants with 1 rosette	12.5	20.0	11.1	16.7	0.0	0.0	9.5	11.1	6.3	16.7	8.0	0.0	33.3	0.0	0.0

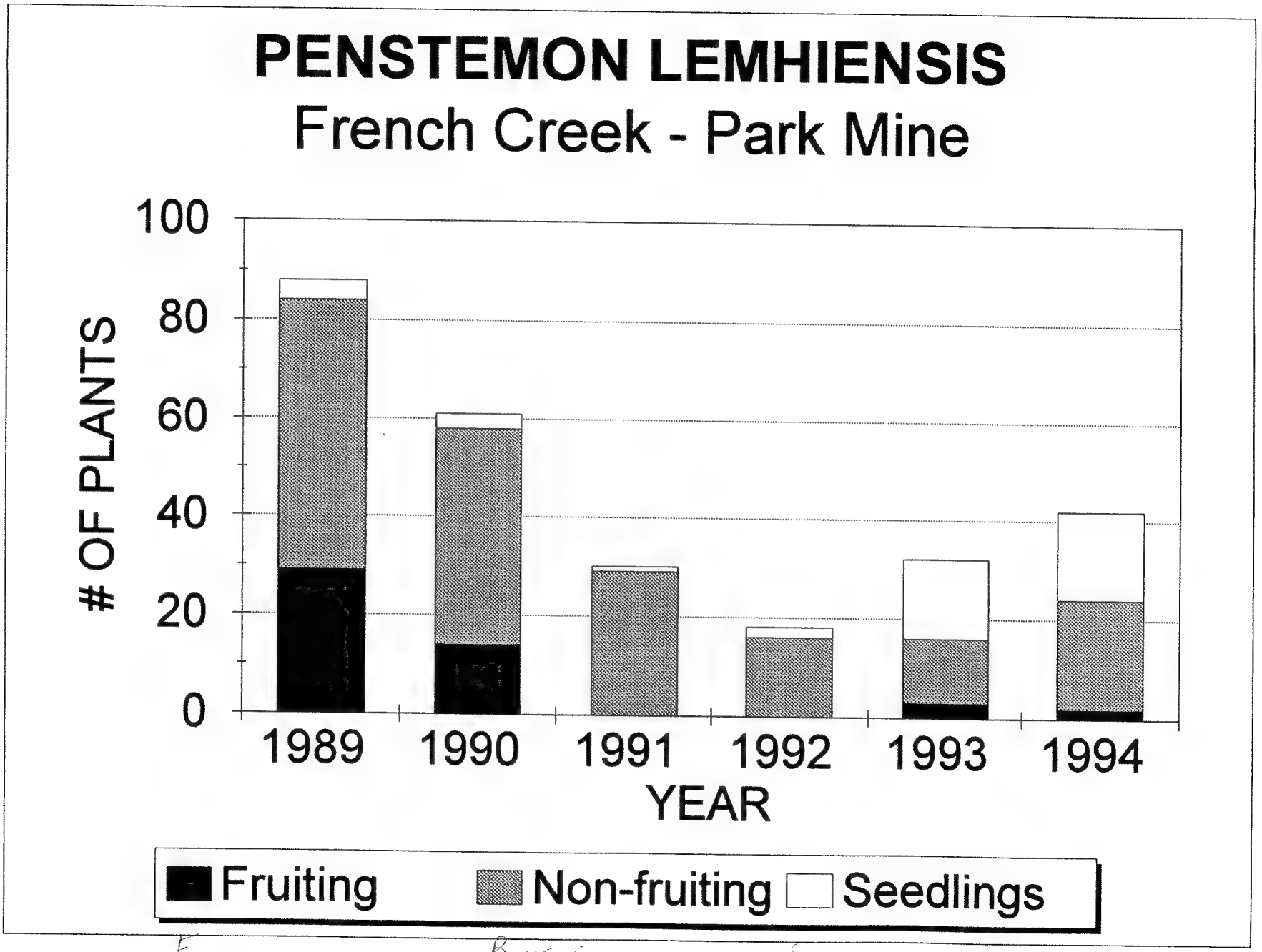

PENSTEMON LEMHIENSIS
French Creek - Park Mine
OF PLANTS
100
80
60
40
20
0
1989
1990
1991
1992
1993
1994
YEAR
Fruiting
Non-fruiting
Seedlings

Figure 1.

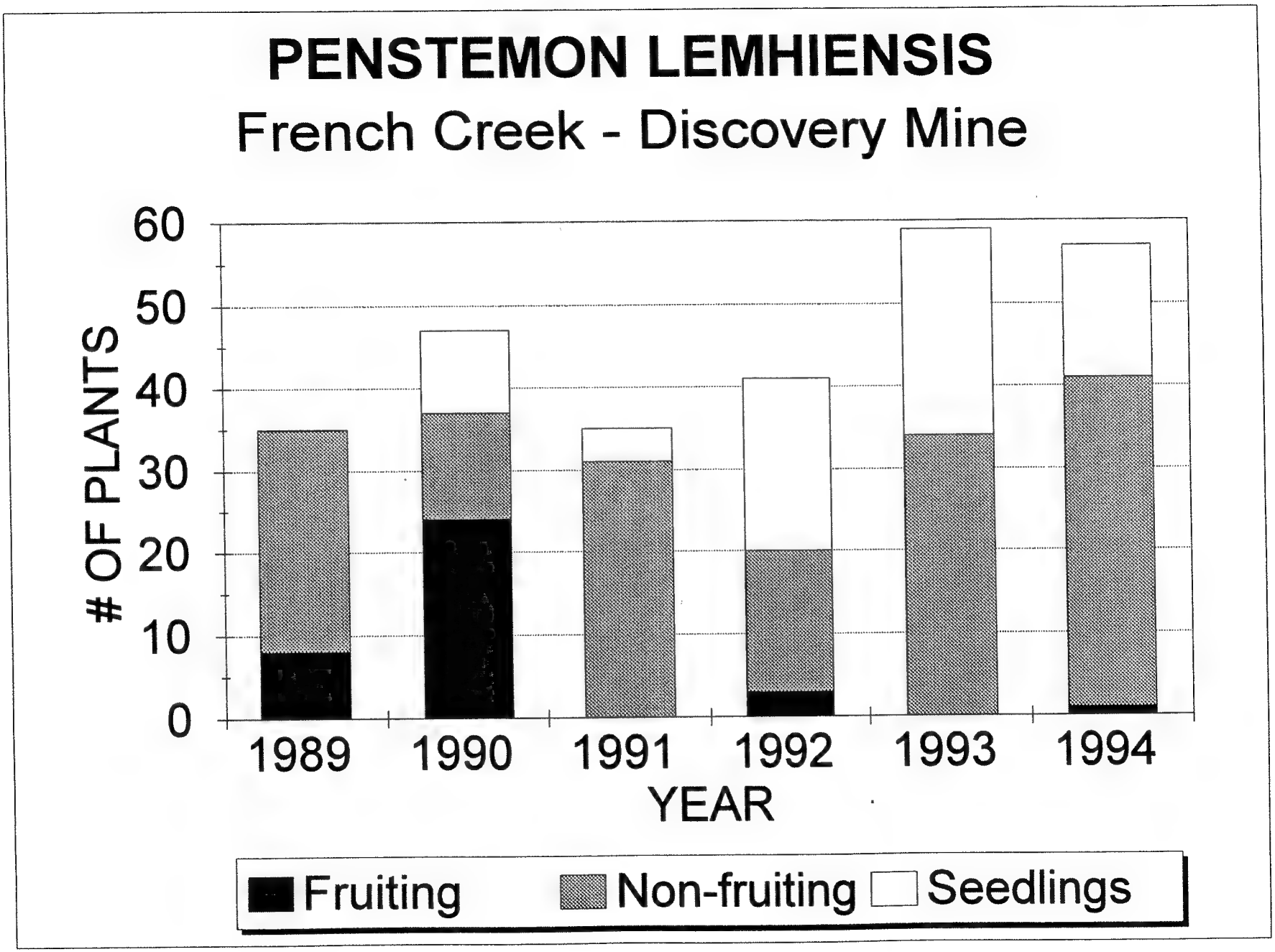

PENSTEMON LEMHIENSIS
French Creek - Discovery Mine
OF PLANTS
60
50
40
30
20
10
0
1989
1990
1991
1992
1993
1994
YEAR
Fruiting
Non-fruiting
Seedlings

Figure 2.

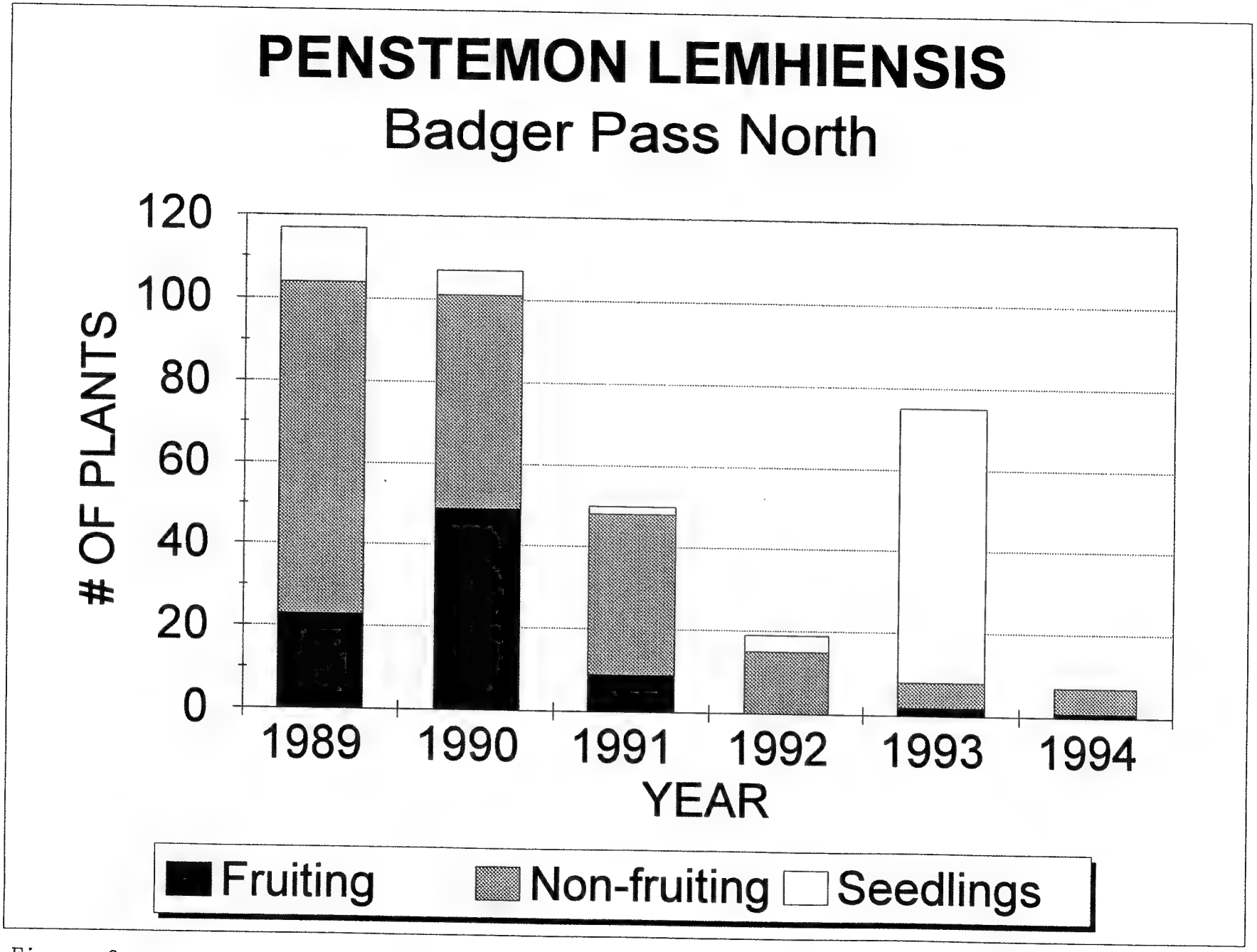

PENSTEMON LEMHIENSIS
Badger Pass North
OF PLANTS
120
100
80
60
40
20
0
1989
1990
1991
1992
1993
1994
YEAR
Fruiting
Non-fruiting
Seedlings

Figure 3.

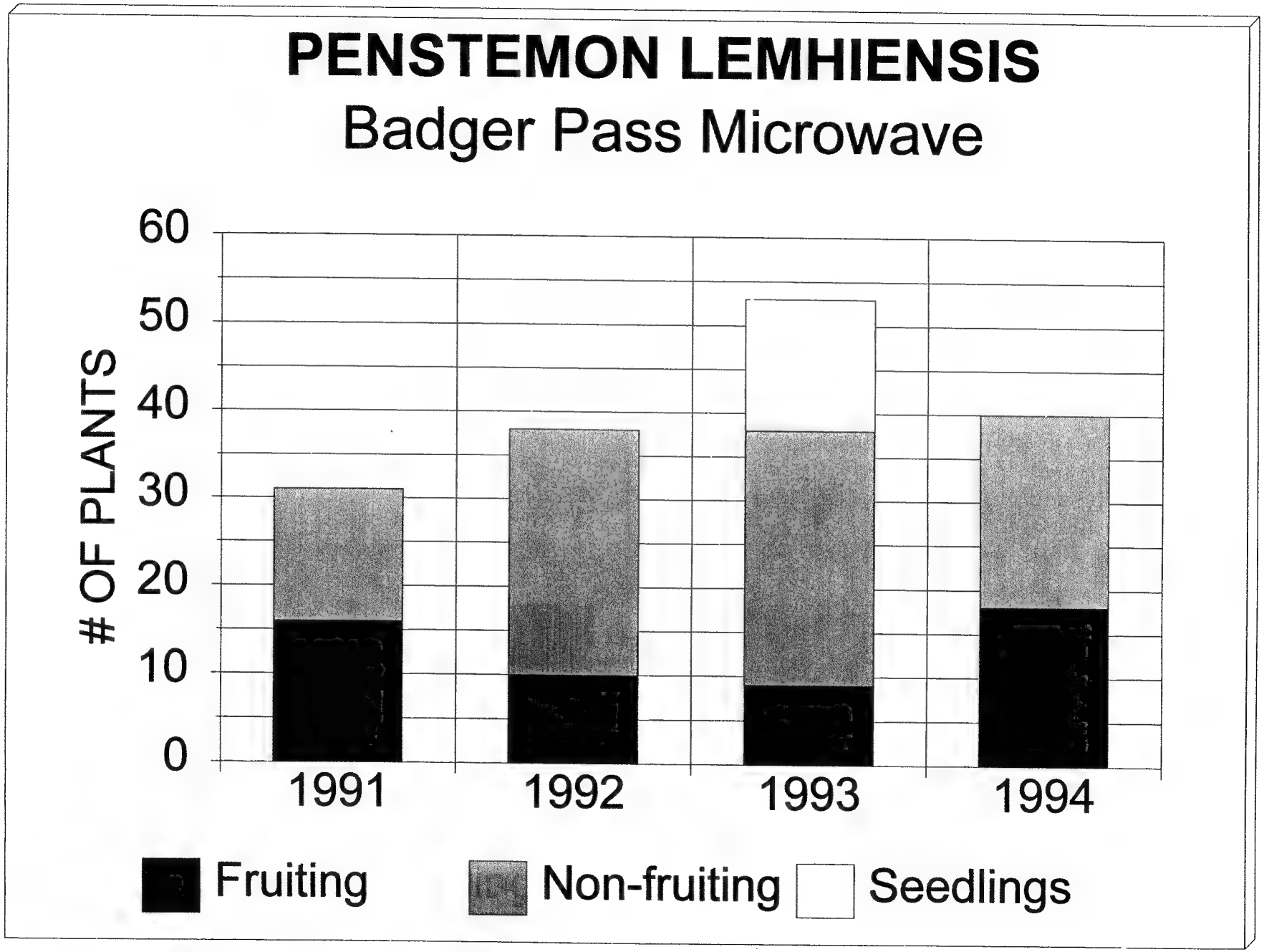

PENSTEMON LEMHIENSIS
Badger Pass Microwave
OF PLANTS
60
50
40
30
20
10
0
1991
1992
1993
1994
Fruiting
Non-fruiting
Seedlings

Figure 4.

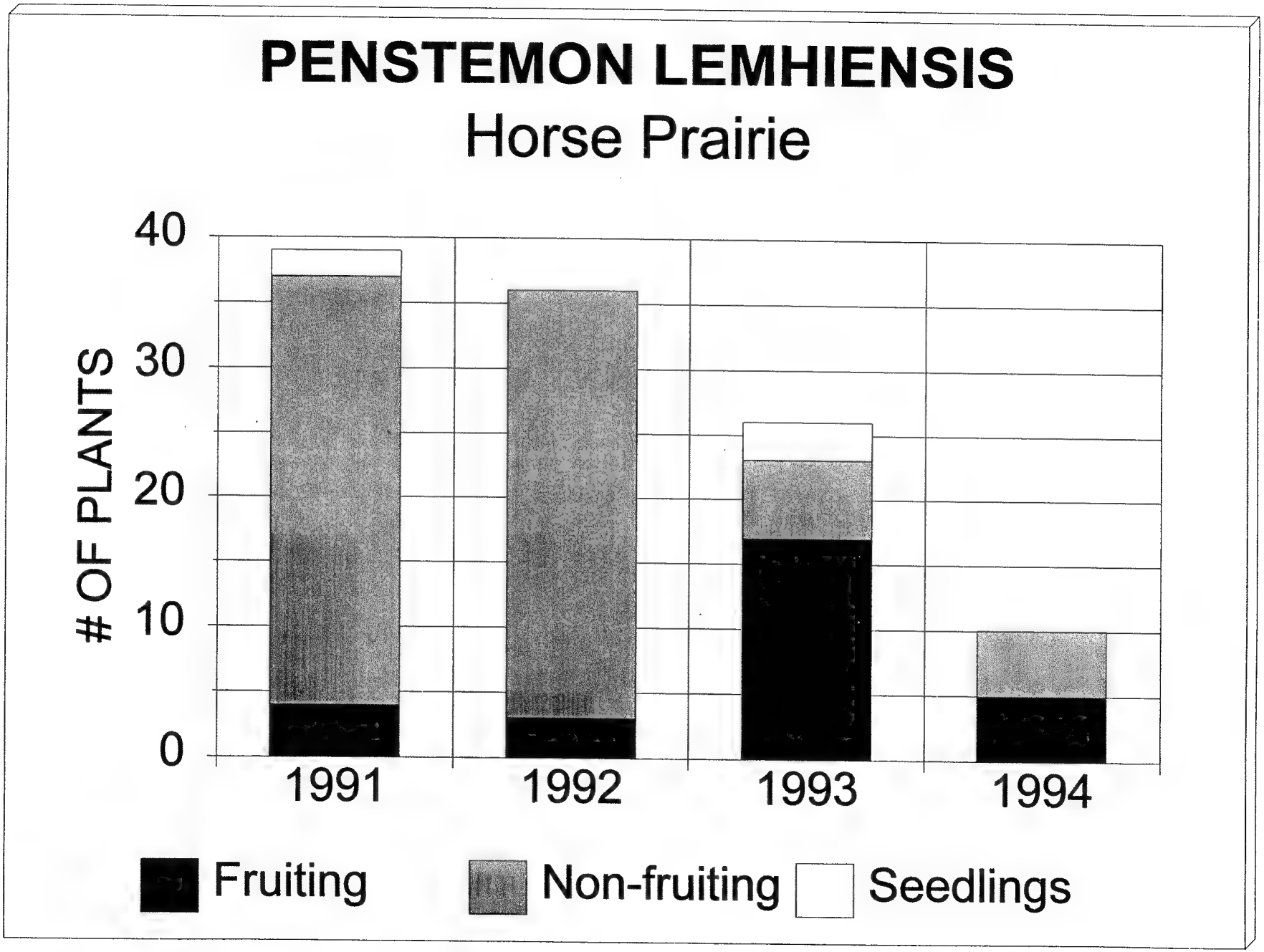

PENSTEMON LEMHIENSIS
Horse Prairie
OF PLANTS
40
30
20
10
0
1991
1992
1993
1994
Fruiting
Non-fruiting
Seedlings

Figure 5.

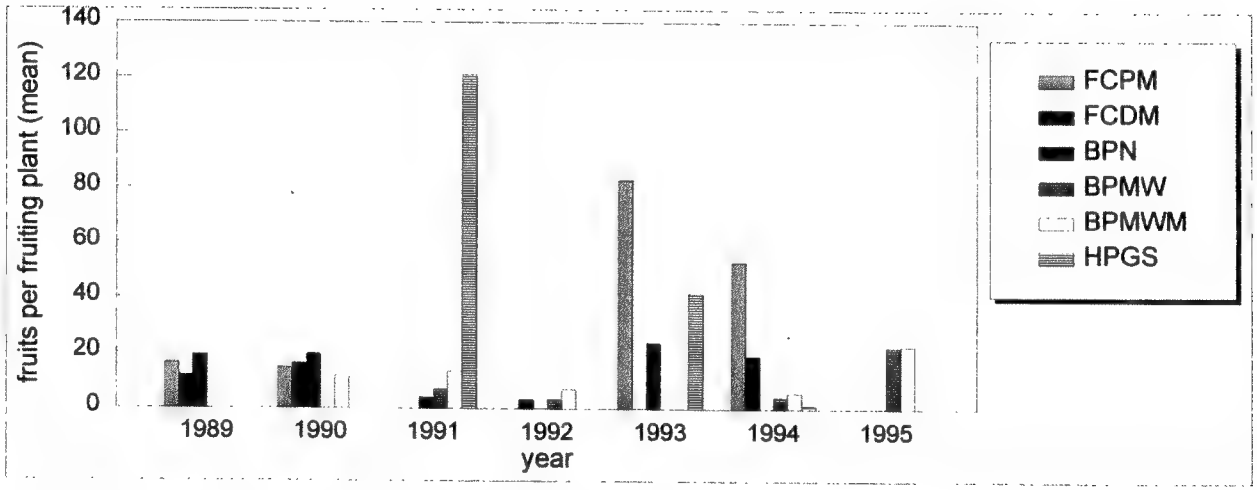


Figure 6. Fruits per fruiting plant

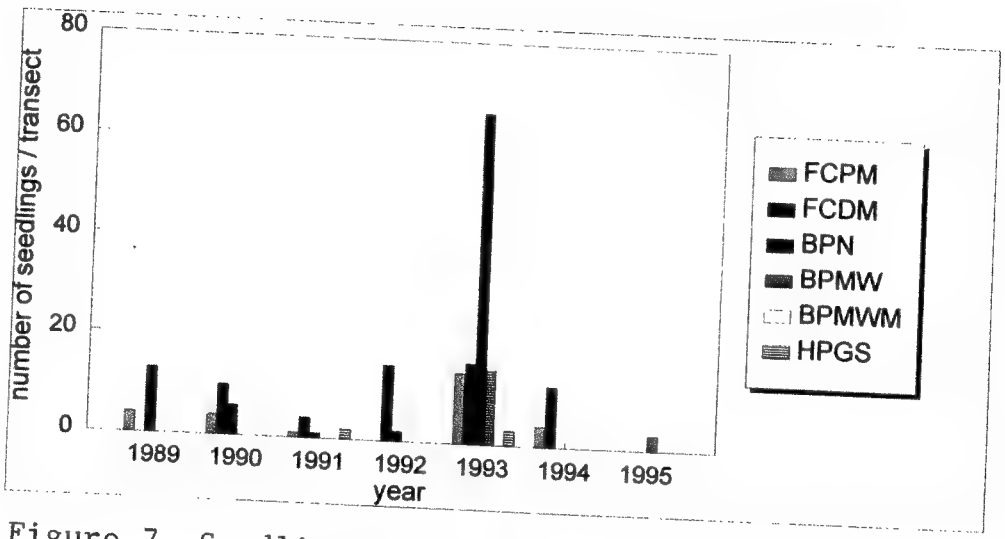


Figure 7. Seedling numbers

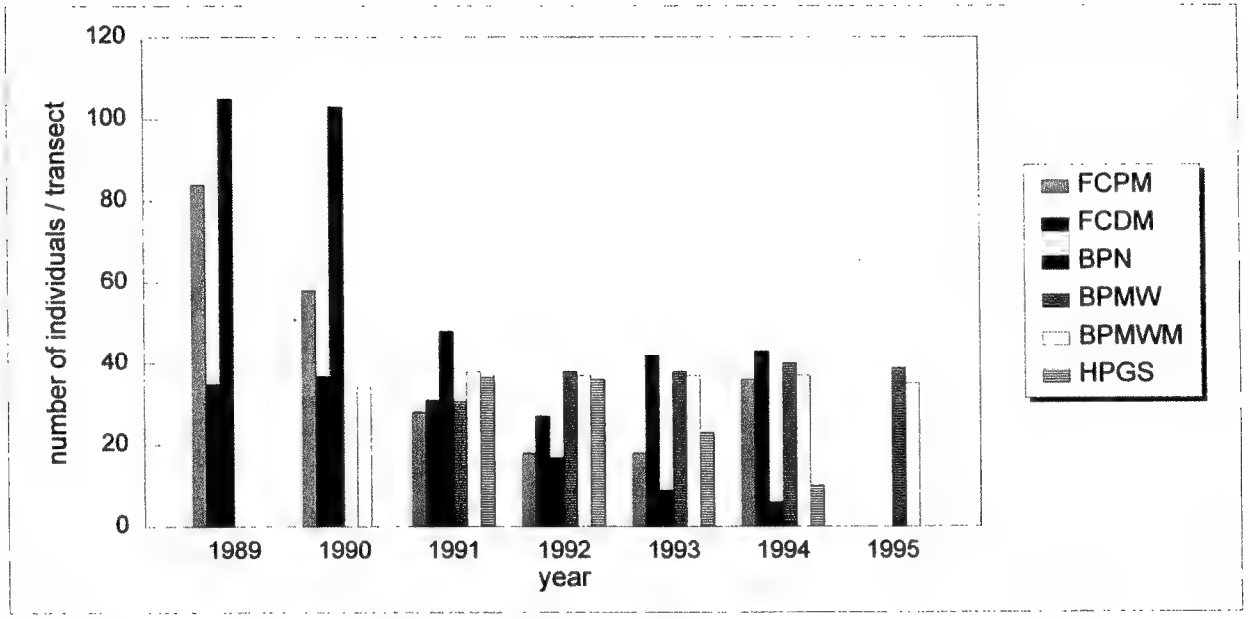


Figure 8. Mature plant numbers

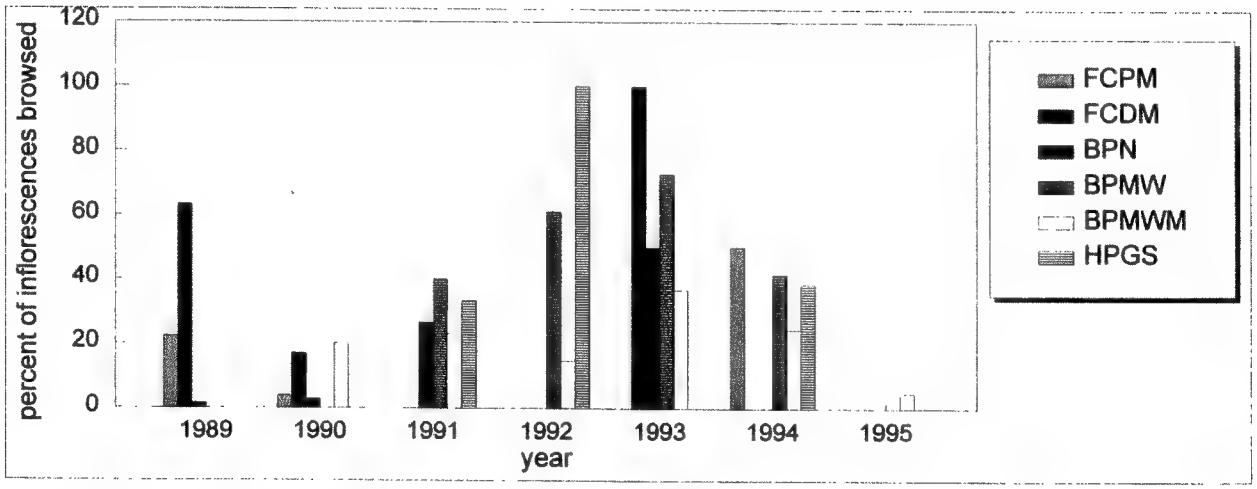


Figure 9. Infloresence browse

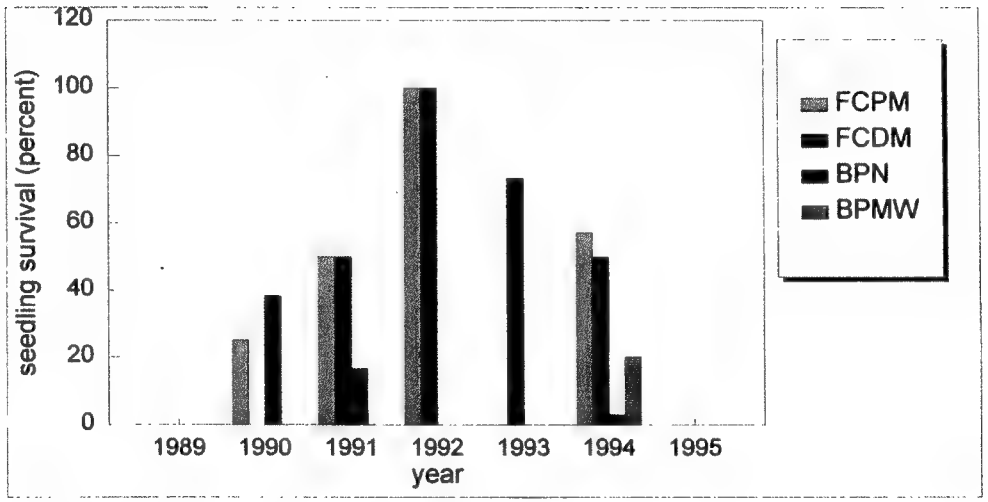


Figure 10. Seedling survival

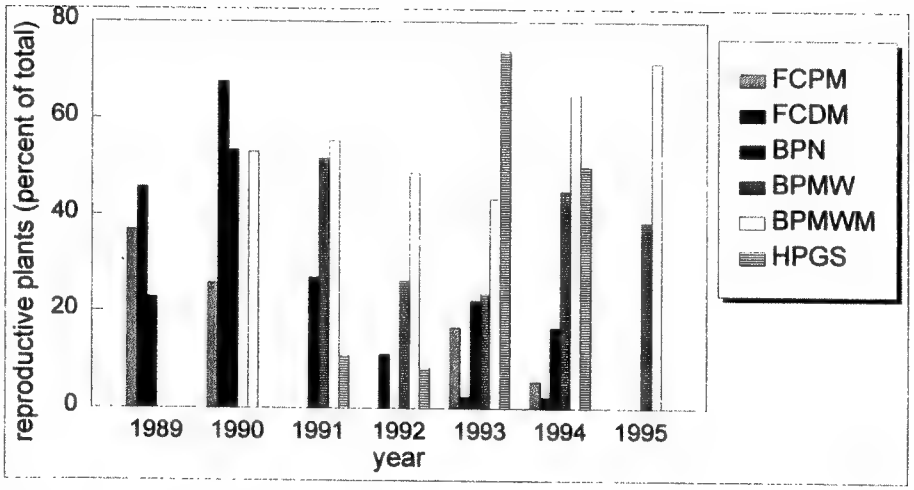


Figure 11. Fruiting levels

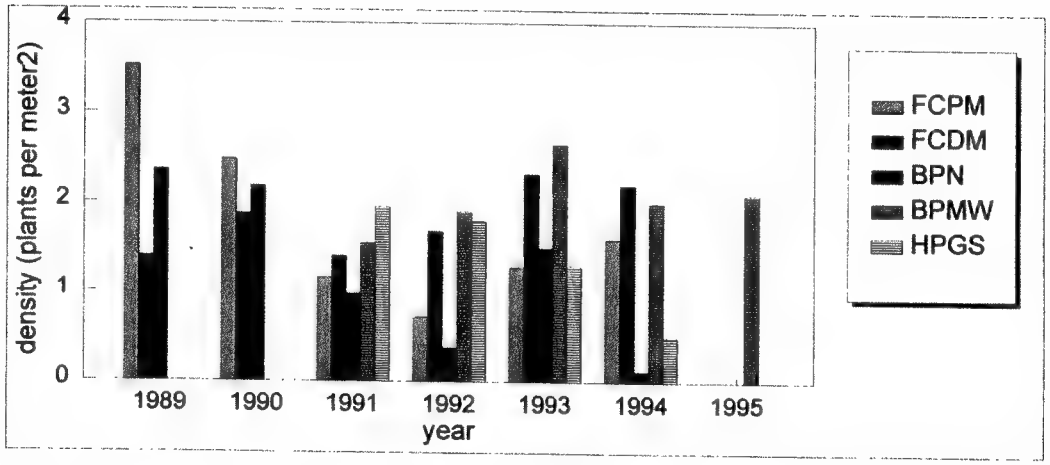


Figure 12. Total plant density

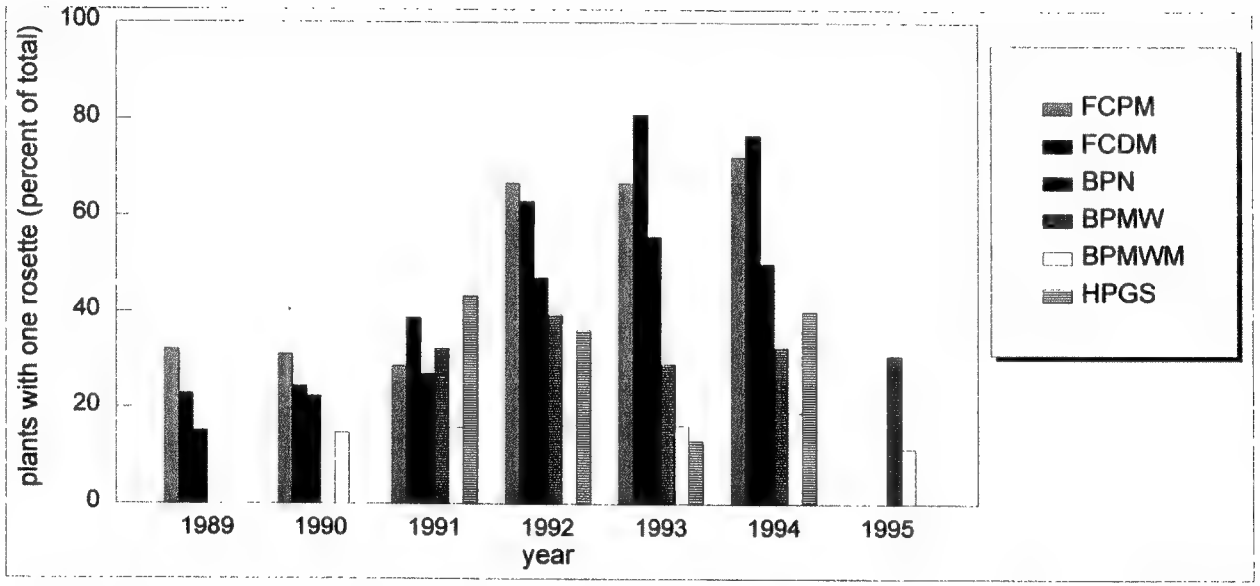


Figure 13. Single rosette numbers

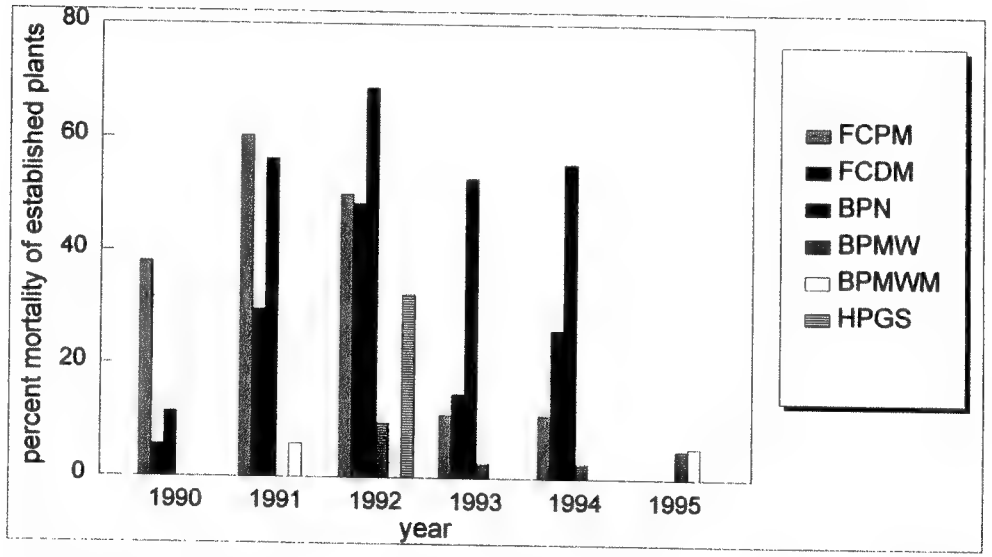


Figure 14. Mature plant mortality

V. LITERATURE CITED

Achuff, P. L. 1992. Demographic monitoring of Penstemon lemhiensis, Dillon Resource Area. Montana Natural Heritage Program. 11 pp.

Achuff, P. L. and J. S. Shelly. 1991. Demographic monitoring of Penstemon lemhiensis, Beaverhead National Forest, 1990 progress report. Montana Natural Heritage Program, Helena. 34 pp.

Heidel, B. L. 1995. Montana plant species of special concern. Unpublished list. Montana Natural Heritage Program, Helena. 26 pp.

Heidel, B. L. and J. S. Shelly. 1993. Demographic monitoring of Penstemon lemhiensis, Dillon Resource Area, Bureau of Land Management, 1992 progress report. Montana Natural Heritage Program, Helena. 18 pp.

Lesica, P. and J. S. Shelly. 1991. Sensitive, Threatened and Endangered Vascular Plants of Montana. Montana Natural Heritage Program, Occasional Publication No. 1. Helena, Montana. 88 pp.

Meyer, S. 1995. Seed germination timing patterns in Intermountain Penstemon (Scrophulariaceae). Amer. J. Bot. 82:377-389.

Schemske, D. W., B. C. Husband, M. H. Ruckelhaus, C. Goodwillie, I. M. Parker, and J. G. Bishop. 1994. Evaluating approaches to the conservation of rare and endangered plants. Ecol. 75: 584-606.

Shelly, J. S. 1990. Status review update and establishment of demographic monitoring studies: Penstemon lemhiensis. Report to U.S. Forest Service - Region 1, Beaverhead and Bitterroot National Forests, Montana. Montana Natural Heritage Program, Helena. 61 pp.

Shelly, J. S. and P. L. Achuff. 1992. Demographic monitoring of Penstemon lemhiensis, Beaverhead National Forest, 1991 progress report. Montana Natural Heritage Program, Helena. 19 pp.

Shelly, J. S. and B. L. Heidel. 1993. Demographic monitoring of Penstemon lemhiensis, Beaverhead National Forest, 1992 progress report. Montana Natural Heritage Program, Helena. 15 pp.

U.S. Department of Agriculture. 1994. U.S. Forest Service, Region 1 sensitive species list. Missoula, MT. 14 pp.

U.S. Department of Interior. 1993. Endangered and threatened wildlife and plants; review of plant taxa for listing as endangered or threatened species; notice of review. Federal Register 58 (188):51144-51190.

APPENDIX A. DEMOGRAPHIC MONITORING TRANSECT DATA

French Creek Park Mine

Plo pint	1989 COR	I	F	A	P	B	D	TS	SC	1990 COR	I	F	A	P	B	D	TS	SC	1991 COR	I	F	A	P	B	D	TS	SC	92 COR	I	F	A	P	B	D	TS	SC	19 COR	I	F	A	P	B	D	TS	SC	R
1 a	2	2								2									2	0					x			1 a	0									0									
1 b	1	1								2									2	0					x			1 b	0									0									
1 c	1	1								4	4	1				1				0					x			1 c	0									0									
1 d	3	3	1	7						1	1									0					x			1 d	0									0									
2	0									0										0								2	0									0									
3 a	1	1								2	2									0					x			3 a	0									0									
3 b	1	1								2	2									0					x			3 b	0									0									
3 c	0						1			0						x				0								3 c	0									0									
3 d	1	1								1	1									0					x			3 d	0									0									
3 e	1	1								0						x				0								3 e	0									0									
3 f	1	1	1	2						0						x				0								3 f	0									0									
3 g	1	1								2	2									0					x			3 g	0									0									
4 a	0						1			0						x				0								4 a	0									0									
4 b	1	1								3	3									2	2							4 b	0									0									
4 c	3	3								0						x				0								4 c	0									0									
4 d	1	1								0						x				0								4 d	0									0									
4 e	2	2								1	1									0					x			4 e	0									0									
4 f	0									0										1	1							4 f	1	1								1	1								
4 g	0									0										0								4 g	0									0									1
5 a	2	2								0						x				0								5 a	0									0									
5 b	1	1								0						x				0					x			5 b	0									0									
5 c	0									0										0								5 c	0									0									
6 a	4	4								1	1									0								6 a	0									0									
6 b	1	1								0						x				0								6 b	0									0									
6 c	0						1			0						x				0								6 c	0									0									
6 d	1	1								0						x				0								6 d	0									0									
6 e	0									0					1					1							1	6 e	1	1								1	1								
7 a	1	1								0						x				0								7 a	0									0									
7 b	1	1								0						x				0								7 b	0									0									
7 c	1	1								0						x				0								7 c	0									0									
7 d	1	1								2	2									3	3							7 d	3	1				2	2	2			1	1							
8 a	0						1			0								1		0								8 a	0									0									
8 b	2	2								0						x				0								8 b	0									0									
8 c	1	1								1	1									0								8 c	0									0									
8 d	0									0										0								8 d	0									0									
8 e	0									0										0								8 e	0									0									1
9 a	3	3	2	5						0						x				0								9 a	0									0									
9 b	6	6								3	3									0								9 b	0									0									
9 c	10	10	1	11						0						x				0								9 c	0									0									
10 a	10	10	5	35		1				0						x				0								10 a	0									0									
10 b	3	3	1	11						0										0								10 b	0									0									
10 c	3	3	3	13						0										0								10 c	0									0									
10 d	3	3								0										0								10 d	0									0									
10 e	2	2								1	1									0								10 e	0									0									
10 f	1	1								1	1									1	1							10 f	0									0									
10 g	5	5	1	6						0										0								10 g	0									0									
10 h	1	1								3	3									2	2							10 h	1	1								1	1								
10 i	1	1								0										0								10 i	0									0									
10 j	8	8	2	31						1	1									0								10 j	0									0									
11 a	6	6	1	5						0										0								11 a	0									0									
11 b	2	2								2	2									2	2							11 b	1	1								0									
11 c	6	6								0										0								11 c	0									0									
11 d	3	3								0										0								11 d	0									0									
11 e	8	8	2	20		1				0										0								11 e	0									0									
11 f	1	1								1	1									0								11 f	0									0									
11 g	12	12	1	18						6	6	3	8	24	4					3	3							11 g	1	1								2	2								2
11 h	4	4	2	19						0										0								11 h	0									0									
11 i	0									0										0								11 i	1					1				1	1								1
11 j	0									0										0								11 j	0									0									1
11 k	0									0										0								11 k	0									0									2
11 l	0									0										0								11 l	0									0									1
11 m	0									0										0								11 m	0									0									
11 n	0									0										0								11 n	0									0									1
11 o	0									0										0								11 o	0									0									
12 a	2	2	2	35						0										0								12 a	0									0									
12 b	4	4								3	3	2	4	24	1					0								12 b	0									0									
12 c	4	4	2	39						1	1									0					x			12 c	0									0									
12 d	5	5	1	13						3	3									4	4							12 d	1	1								1	1								
12 e	3	3	1	7						0										0								12 e	0									0									
12 f	0									0										0								12 f	0									0									1
12 g	0									0										0								12 g	0									0									1
12 h	0									0										0								12 h	0									0									
12 i	0									0										0								12 i	0									0									1
12 j	0									0										0								12 j	0									0									1
12 k	0									0										0								12 k	0									1									1
13 a	7	7	2	17						0										0								13 a	0									0									
13 b	0									0										0								13 b	0									1									1

Plo plnt	CO	R	I	F	A	P	B	D	TS	S	C
13 c	0										
14 a	2	2									
14 b	5	5	1	12							
15 a	5	5									
15 b	0										
15 c	0										
16 a	7	7	2	22							
16 b	0										
17 a	1	1									
17 b	3	3									
17 c	2	2	1	7							
17 d	5	5									
17 e	0										
17 f	0										
18 a	5	5	1	16							
18 b	7	7	3	29							
18 c	3	3									
18 d	0										
18 e	0										
19 a	7	7									
19 b	5	5									
19 c	4	4	1	21							
19 d	4	4									
19 e	10	10	6	13			5				
19 f	8	8	4	61							
19 g	0										
19 h	0										
19 i	0										
19 j	0										
19 k	0										
19 l	0										
20 a	4	4					1				
20 b	0										
20 c	0										
20 d	0										
21 a	0										
21 b	0										
22 a	2	2									
22 b	4	4									
22 c	0										
23 a	1	1									
23 b	6	6	1	1			1				
23 c	1	1	1	3							
23 d	1	1									
23 e	3	3									
23 f	4	4	1				1				
23 g	3	3									
23 h	0										
23 i	0										
23 j	0										
24	0										
25 a	1	1									
25 b	11	11									
25 c	7	7	1				1				
25 d	9	9	2				2				
25 e	3	3									
25 f	0										
25 g	0										
			56	479	0	0	13				

199

Plo plnt	CO	R	I	F	A	P	B	D	T	S	C
13 c	0										
14 a	0										
14 b	0										
15 a	4	4	2	11	28						
15 b	0								1		
15 c	0										
16 a	3	3	2	11	28						
16 b	0										
17 a	3	3									
17 b	0										
17 c	0										
17 d	2	2	1	2	6						
17 e	0										
17 f	0										
18 a	3	3									
18 b	3	3									
18 c	3	3									
18 d	0								1		
18 e	0										
19 a	5	5	1	15	12						
19 b	5	5	2	16	16						
19 c	1	1	1	1	8						
19 d	4	4	1	7	12						
19 e	13	13	4	60	108						
19 f	6	6	2	48	29						
19 g	1	1									
19 h	0										
19 i	0										
19 j	0										
19 k	0										
19 l	0										
20 a	6	6									
20 b	0										
20 c	0										
20 d	0										
21 a	2	2									
21 b	0										
22 a	1	1									
22 b	3	3									
22 c	2	2									
23 a	0										
23 b	5	5									
23 c	2										2
23 d	2	2									
23 e	1	1									
23 f	4	4	1	3	12	1					
23 g	1	1									
23 h	2										2
23 i	2	2									
23 j	0										
24	0										
25 a	1	1									
25 b	7	7	2	13	20						
25 c	4	4	1	6	6						
25 d	7	7									
25 e	1	1									
25 f	3	3									
25 g	0										
			26	205	333	6	1	0			

1991

Plo plnt	CO	R	I	F	A	P	B	D	T	S	C
13 c	0										
14 a	0										
14 b	0										
15 a	0										
15 b	0										
15 c	1										1
16 a	2										2
16 b	0								1		
17 a	0										
17 b	0										
17 c	0										
17 d	0										
17 e	0										
17 f	0										
18 a	0										
18 b	3	3									
18 c	3	3									
18 d	1										1
18 e	0										
19 a	1	1									
19 b	6	6									
19 c	0										
19 d	2	2									
19 e	5	5									
19 f	0										
19 g	0										
19 h	0										
19 i	0										
19 j	0										
19 k	0										
19 l	0										
20 a	4	4									
20 b	0										
20 c	0										
20 d	0										
21 a	0										
21 b	0										
22 a	4	1									3
22 b	3	3									
22 c	0										
23 a	0										
23 b	0										
23 c	0										
23 d	1										1
23 e	0										
23 f	2	2									
23 g	0										
23 h	0										
23 i	0										
23 j	0										
24	0										
25 a	0										
25 b	6	6									
25 c	4	4									
25 d	6	4									2
25 e	1	1									
25 f	2	1									1
25 g	0										
			0	0	0	0	0				

1992

Plo plnt	CO	R	I	F	A	P	B	D	T	S	C
13 c	0										
14 a	0										
14 b	0										
15 a	0										
15 b	0										
15 c	0										
16 a	0										
16 b	1	1									
17 a	0										
17 b	0										
17 c	0										
17 d	0										
17 e	0										
17 f	0										
18 a	0										
18 b	0										
18 c	3	1									2
18 d	0										
18 e	0										
19 a	0										
19 b	4	4									
19 c	0										
19 d	1	1									
19 e	1	1									
19 f	0										
19 g	0										
19 h	0										
19 i	0										
19 j	0										
19 k	0										
19 l	0										
20 a	0										
20 b	0										
20 c	0										
20 d	0										
21 a	0										
21 b	0										
22 a	2	1									1
22 b	0										
22 c	0										
23 a	0										
23 b	0										
23 c	0										
23 d	0										
23 e	0										
23 f	1	1									
23 g	0										
23 h	0										
23 i	0										
23 j	0										
24	0										
25 a	0										
25 b	4	4									
25 c	3	3									
25 d	1										1
25 e	0										
25 f	0										
25 g	0										

[illegible]

Plo plnt	CO	R	I	F	A	P	B	D	TS	S	C
13 c	0										
14 a	0										
14 b	0										
15 a	0										
15 b	0										
15 c	0										
16 a	0										
16 b	1	1									
17 a	0										
17 b	0										
17 c	0										
17 d	0										
17 e	0									1	
17 f	0										
18 a	0										
18 b	0										
18 c	3	3									
18 d	0										
18 e	0									1	
19 a	0										
19 b	2	2	1	78							
19 c	0										
19 d	0										
19 e	1										1
19 f	0										
19 g	0										
19 h	0									1	
19 i	0									1	
19 j	0										
19 k	0										
19 l	0										
20 a	0										
20 b	0									1	
20 c	0									1	
20 d	0									1	
21 a	0										
21 b	0										
22 a	1	1	1	56							
22 b	0										
22 c	0										
23 a	0										
23 b	0										
23 c	0										
23 d	0										
23 e	0										
23 f	1	1									
23 g	0										
23 h	0										
23 i	0										
23 j	0										
24	0										
25 a	0										
25 b	4	4	1	115							
25 c	2	2									
25 d	1	1									
25 e	0										
25 f	0										
25 g	1	1									

[illegible]

Plo plnt	CO	R	I	F	A	P	B	D	T	S	C	TR
13 c	1										1	
14 a	0											
14 b	0											
15 a	0											
15 b	0											
15 c	0											
16 a	0											
16 b	1	1										
17 a	0											
17 b	0											
17 c	0											
17 d	0											
17 e	1										1	
17 f	1										1	
18 a	0											
18 b	0											
18 c	6	6										
18 d	0											
18 e	1										1	
19 a	0											
19 b	4	4										
19 c	0											
19 d	0											
19 e	0											
19 f	0											
19 g	0											
19 h	0											
19 i	0											
19 j	1										1	
19 k	1										1	
19 l	1										1	
20 a	0											
20 b	0											
20 c	1										1	
20 d	1										1	
21 a	0											
21 b	1	1										
22 a	6	6										
22 b	0											
22 c	0											
23 a	0											
23 b	0											
23 c	0											
23 d	0											
23 e	0											
23 f	1	1										
23 g	0											
23 h	0											
23 i	0											
23 j	1										1	
24	0											
25 a	0											
25 b	4	4	1	86	70							
25 c	3	3	1	20	20		1					
25 d	1	1										
25 e	0											
25 f	0											
25 g	6	6										

French Creek Discovery Mine

Plo plnt	CO	R	I	F	A	P	B	D	TS	S	C
1 a	4	4	3				3				
1 b	3	3	2				2				
1 c	3	3									
1 d	3	3									
1 e	2	2									
1 f	4	4	1				1				
1 g	2	2									
1 h	1	1									
1 i	8	8					2				
1 j	1	1									
1 k	2	2									
1 l	1	1									
1 m	4	4	2	2			2				
1 n	1	1									
1 o	2	2									
1 p	4	4	1								
1 q	0										

199

Plo plnt	CO	R	I	F	A	P	B	D	T	S	C
1 a	5	5	2	24	40						
1 b	1	1	1	7	24						
1 c	3	3	1	3	19						
1 d	4	4	1	9	37						
1 e	3	3			3		1				
1 f	4	4	1	9	28						
1 g	2	2	2	13	41						
1 h	2	2									
1 i	4	4	2	9	20		1				
1 j	2	2	2	2	7	1					
1 k	3	3	1	5	21						
1 l	1	1	1	10	21						
1 m	6	6	5	21	55		3				
1 n	3	3	2	29	54						
1 o	0										
1 p	5	5	3	32	72						
1 q	0								1		

1991

Plo plnt	CO	R	I	F	A	P	B	D	T	S	C
1 a	1										1
1 b	0										
1 c	5	3									2
1 d	4	4									
1 e	1										1
1 f	0										
1 g	0										
1 h	3										3
1 i	7	6									1
1 j	3	3									
1 k	0										
1 l	0										
1 m	0										
1 n	2	2									
1 o	0										
1 p	5	5									
1 q	1										1

1992

Plo plnt	CO	R	I	F	A	P	B	D	T	S	C
1 a	0										
1 b	0										
1 c	0										
1 d	0										
1 e	2	1									1
1 f	0										
1 g	0										
1 h	0										
1 i	2	2									
1 j	0										
1 k	0										
1 l	0										
1 m	0										
1 n	0										
1 o	0										
1 p	5	5									
1 q	0										

[illegible]

Plo plnt	CO	R	I	F	A	P	B	D	TS	S	C
1 a	0										
1 b	0										
1 c	0										
1 d	0										
1 e	1										1
1 f	0										
1 g	0										
1 h	0										
1 i	2	2									
1 j	0										
1 k	0										
1 l	0										
1 m	0										
1 n	0										
1 o	0										
1 p	2	2									
1 q	0										

[illegible]

Plo plnt	CO	R	I	F	A	P	B	D	T	S	C	TR
1 a	0											
1 b	0											
1 c	0											
1 d	0											
1 e	1										1	
1 f	0											
1 g	0											
1 h	0											
1 i	2	2										
1 j	0											
1 k	0											
1 l	0											
1 m	0											
1 n	0											
1 o	0											
1 p	1										1	
1 q	0											

		1989											1990											1991											1992											1993											1994										
Plo	pint	CO	R	I	F	A	P	B	D	TS	S	C	CO	R	I	F	A	P	B	D	T	S	C	CO	R	I	F	A	P	B	D	T	S	C	CO	R	I	F	A	P	B	D	TS	S	C	CO	R	I	F	A	P	B	D	T	S	C	TR
1	r	0											1	1										1										1	1	1																											
1	s	0											0									1		0											0																										1
1	t	0											0								1			0										1	0								X																	
1	u	0											0											0										1	1	1																									1	
1	v	0											0											0										1	0								x																			
1	w	0											0											0										1	1										1														1	
1	x	0											0											0										1	0																										
1	y	0											0											0										1	0																								1	
1	z	0											0											0										1	0																								1	
2	a	1	1										3	3										3	3							x			0																									
2	b	6	6	4			4						8	8	1	4	14							8	8										6	4	1	4	10			2	1	1																	
2	c	6	6	1	1								4	4	4	23	51	1						2	2										0								x																			
2	d	0											1							1				1	1										1	1																									
2	e	0											1							1				1	1								1		1	1																									
2	f	0											0									1		0							x				0																									
2	g	0											0											0										1	1																									
2	h	0											0											0										3	2																									
3		0											0											0										3	0																									
4		0											0											0										4	0																									
5		0											0											0										5	1																									
6	a	4	4	1			1						11	11	1	5	37							8	8										6	2	2	1	1	7			1	1																	
6	b	4	4	1	6								6	6										1	1										6	0																									
6	c	0											0									1		1										1	6	0																									
6	d	0											0									1		2										2	6	2																									
6	e	0											0									1		0											6	0																									
6	f	0											0								1			0										1	6	1																									
6	g	0											0											0										1	6	1																									
6	h	0											0											0										1	6	1																									
6	i	0											0											0										1	6	1																									
6	j	0											0											0										1	6	1																									
6	k	0											0											0										1	6	0																									
6	l	0											0											0										1	6	0																									
6	m	0											0											0										1	6	0																									
6	n	0											0											0										1	6	1	1																									
6	o	0											0											0										1	6	1	1																									
6	p	0											0											0										1	6	1																									
6	q	0											0											0										6	0																									
6	r	0											0											0										6	0																									
6	s	0											0											0										6	0																									
7	a	1	1										5	5										5	5										7	a	1	1																									
7	b	2	2	1	20								1	1										2	2										7	b	3	2																									
7	c	1	1										1	1										2	2										7	c	1	1	1	5	6																									
7	d	5	5	1			1						4	4	1	5	12							4	4										7	d	0																													
7	e	0											1	1										1	1										7	e	1	1																									
7	f	0											0									1		0										7	f	0																													
7	g	0											0									1		1										1	7	g	0																													
7	h	0											0									1		0							x				7	h	0																													
7	i	0											0										1	0										1	7	i	1																												
7	j	0											0										1	0										1	7	j	1																												
7	k	0											0											0											7	k	0																													
7	l	0											0											0											7	l	0																													
7	m	0											0											0											7	m	0																													
7	n	0											0											0											7	n	0																													
7	o	0											0											0											7	o	0																													
7	p	0											0											0											7	p	0																													
7	q	0											0											0											7	q	0																													
7	r	0											0											0											7	r	0																													
7	s	0											0											0											7	s	0																													
7	t	0											0											0											7	t	0																													
7	u	0											0											0											7	u	0																													
7	v	0											0											0											7	v	0																													
8	a	0											0											0											8	a	0																													
8	b	0											0											0											8	b	0																													
8	c	0											0											0											8	c	0																													
9	a	6	6	6	7		2						1	1	7	76	229	1						0											9	a	0																													
9	b	0											0											0											9	b	0																													
9	c	0											0											0											9	c	0																													
9	d	0											0											0											9	d	0																													
9	e	0											0											0											9	e	0																													
9	f	0											0											0											9	f	0																													
9	g	0											0											0											9	g	0																													
9	h	0											0											0											9	h	0																													
9	i	0											0											0											9	i	0																													
9	j	0											0											0											9	j	0																													
9	k	0											0											0											9	k	0																													
9	l	0											0											0											9	l	0																													
9	m	0											0											0											9	m	0																													
10	a	0											0											0											10	a	0																													
10	b	0											0											0											10	b	0																													

Plo	plnt	1989 COR	I	F	A	P	B	D	T	S	C	1990 COR	I	F	A	P	B	D	T	S	C	91 COR	I	F	A	P	B	D	T	S	C	92 COR	I	F	A	P	B	D	T	S	C	COR	I	F	A	P	B	D	T	S	C
10	c	0										0										0										0										0								1	
10	d	0										0										0										0										0								1	1
10	e	0										0										0										0										0								1	
10	f	0										0										0										0										0									1
11		0										0										0										0										0									
12		0										0										0										0										0									
13		0										0										0										0										0									
14	a	0										0										0										0										1	1								
15		0										0										0										0										0									
16	a	4	4									2	2	1	5	12						1	1									0										0									
16	b	8	8	4	29							0										0										0										0									
17	a	0										0										0										0										0									
18		0										0										0										0										0									
19		0										0										0										0										0									
20		0										0										0										0										0									
21		0										0										0										0										0									
22		0										0										0										0										0									
23	a	3	3	1	31							2	2	4	18	26		1				0										0										0									
24	a	4	4									4	4	2	24	11						0										0										0									
25	a	2	2									2	2									0										0										0									
25	b	3	3									3	3	1	10	14						7	7									0										5	1			4	4	2				2	4	4	
25	c	5	5									3	3	3	28	31						0										0										0									
25	d	1	1									2	2									2	2									0										3			3	2	2					2	2	
25	e	5	5	1				1				6	6	4	21	39		1				5	5									0										0									
25	f	0										0							1			1									1	25	f	1	1										1					1	1	1		
25	g	0										0										0										0										25	g	0				1						0								
25	h	0										0										0										0										25	h	0										1								1
25	i	0										0										0										0										25	i	0										0								1
25	j	0										0										0										0										25	j	0										0								1
25	k	0										0										0										0										25	k	0										0								1
			30	96		0	0	19						53	390	918	1	9					0	0		0	0	0					3	10	23	0	0	0					1		0	0	0	1	0				2	19	33	0	0	0			

Badger Pass North

| | | | | | | | | | |

Plo	plnt	1989 CO	R	I	F	A	P	B	D	T	S	C	1990 CO	R	I	F	A	P	B	D	T	S	C	1991 CO	R	I	F	A	P	B	D	T	S	C	92 CO	R	I	F	A	P	B	D	T	S	C	19 CO	R	I	F	A	P	B	D	T	S	C	IR
2	n	8	8										4	4	3		78							1	1												2	n	0											0											0										
2	o	0											0								1			1											1	2	o	0											0										
2	p	0											0											1											1	2	p	0											0										
2	q	0											0											0													q	0											0										
2	r	0											0											0													r	0											0										
2	s	0											0											0													s	0											0										
2	t	0											0											0													t	0											0										
2	u	0											0											0													u	0											0										
2	v	0											0											0													v	0											0										
2	w	0											0											0													w	0											0										
2	x	0											0											0													x	0											0										
2	y	0											0											0													y	0											1										1
3	a	2	2										3	3	1	4	19							1	1												3	a	0											0										
3	b	7	7										5	5										0													3	b	0											0										
3	c	1	1										1	1										0													3	c	0											0										
3	d	5	5	1	8	19							5	5										5	5												3	d	2	2										0										
3	e	5	5	2	17	25							7	7	4	17	36							2	2												3	e	0											0										
3	f	0											0								1			0													3	f	0											0										
28	a	7	7	3	27	15							6	6	2	29	29							10	10												28	a	1										1	0										
28	b	3	3										4	4										0													28	b	0											0										
29	a	2	2										2	2	1	14	20							2	2												29	a	0											0										
30	a	4	4	1	3	23							4	4										2	2												30	a	2	2										3	3										0
30	b	2	2										2	2										4	4													b	4	4										2	2	1	7		1					0
31	a	3	3	1	8	16							3	3										6	6	1		2								31	a	0											0										
31	b	7	7	1	23	11							11	11	3	45	46							14	14													b	8	8										0										
31	c	1									1		1	1										1	1													c	1	1										1	1										2	1										1
31	d	5	5	1	27	10							0											0													d	0											0										
31	e	0											0											0													e	0											0										
31	f	0											0											0													f	0											0										
32	a	0											0											0													32	a	3	2									1	4	4	1	41							2	2	1		9						
33	a	3	3	2	9	6	1						8	8	1	27	10							2	2	1	1	9	4							33	a	0											0										
35	a	7	7										2	2										4	4												35	a	2	2										4								4		0
35	b	5	5										11	11	3	44	13		1					8	8	1	2	5		1							b	0											0										
35	c	0											0											0													c	1	1										1	1										0
36	a	8	8										14	14	1	11	8							12	12	1		8	5							36	a	0											0										
36	b	2	2										2	2										2	2	1	1	18	11							36	b	0											0										
36	c	1									1		2	2										2	2												36	c	0											0										
36	d	7	7										10	10										0												36	d	0											0										
36	e	3	3										0											0												36	e	0											0										
37	a	3	3										2	2										5	5												37	a	2	2										1								1		0
37	b	6	6										4	4	2	15	25							0												37	b	0											0										
37	c	3	3										5	5	1	32	11							4	4	1	9	10								37	c	0											0										
37	d	7	7										7	7	2	25	16							9	9												37	d	1										1	0										
37	e	3	3										7	7										1	1												37	e	0											0										
37	f	6	6										5	5										2	2	1	1	16	6							37	f	0											0										
37	g	0											5	5										2	2												37	g	0											0										
37	h	0											0								1			0												37	h	0											0										
38	a	1	1										1	1										0												38	a	0											0										
38	b	9	9										5	5	2	1	90							0												38	b	0											0										
38	c	1	1										1	1										0												38	c	0											0										
38	d	6	6										5	5	2	9	51							0												38	d	0											0										
38	e	4	4										2	2										0												38	e	0											0										
38	f	4	4										4	4	4	39	35							0												38	f	0											0										
38	g	11	11										7	7										6	1											5	38	g	0										0										
38	h	9	9	1	12	12							9	9	4	21	88							0													38	h	0											0										
38	i	0											2	2	2		41							0													38	i	0											0										
38	j	0											0											0													38	j	0											0										
38	k	0											0											0													38	k	0											0										
38	l	0											0											0													38	l	0											0										
38	m	0											0											0													38	m	0											0										
38	n	0											0											0													38	n	0											0										
38	o	0											0											0													38	o	0											0										
38	p	0											0											0													38	p	0											0										
38	q	0											0											0													38	q	0											0										
39	a	6	6										3	3										1	1												39	a	0											0										
39	b	2	2										0											0													39	b	0											0										
39	c	1	1										2	2										0													39	c	0											0										
39	d	2	2										4	4							1			0													39	d	0											0										
39	e	3	3										3	3	1	2	5							0													39	e	0											0										
39	f	3	3										5	5	3	20	115							0													39	f	0											0										
39	g	1	1	1	14	22							3	3										0													39	g	0											0										
39	h	5	5										3	3	1									0													39	h	0											0										
39	i	2	2										4	4	3	8	40							0													39	i	0											0										
39	j	5	5	2	16	64							0											0													39	j	0											0										
39	k	1	1	1	13	17							4	4	1	16	22							0													39	k	0											0										
39	l	7	7	1	29	12							7	7										2	2												39	l	1	1										0										
39	m	6	6										7	7	1	33	23							4	4												39	m	0											0										
39	n	6	6										2	2	2	20	31							0													39	n	0											0										
39	o	0											2	2	1	9	14							0													39	o	0											0										

Plot	Plant	1990 COR	I	F	A	P	B	DTS	SC	1991 COR	I	F	A	P	B	DTS	SC	1992 COR	I	F	A	P	B	DTS	SC	COR	I	F	A	P	B	DTS	SC	COR	I	F	A	P	B	DTS	SC	TR
39	p	0								0								0								0							1	0								
39	q	0								0								0								0							1	0								
39	r	0								0								0								0							1	0								
39	s	0								0								0								0							1	0								
39	t	0								0								0								0							1	0								
39	u	0								0								0								0							1	0								
39	v	0								0								0								0							1	0								
39	w	0								0								0								0							1	0								
39	x	0								0								0								0							1	0								
40	a	1	1							8	8	1	7	35				0								0								0								
40	b	2	2	1		34				3	3							0								0								0								
40	c	5	5	1	18	15				1	1							0								0								0								
40	d	4	4							3	3	3	3	90				0								0								0								
40	e	5	5							0								0								0								0								
40	f	3	3							1	1	1		35				0								0								0								
40	g	1	1							0								0								0								0								
40	h	4	4	2	11	15				0								0								0								0								
40	i	6	6	2	31	16				0								0								0								0								
40	i	0								0								0								0								0								
40	ia	0								0								0								0							1	0								
40	ib	0								0								0								0							1	0								
40	ic	0								0								0								0							1	0								
40	id	0								0								0								0							1	0								
40	ie	0								0								0								0							1	0								
40	if	0								0								0								0							1	0								
40	ig	0								0								0								0							1	0								
40	ih	0								0								0								0							1	0								
40	ii	0								0								0								0							1	0								
40	j	5	5							1	1	1	7	22				0								0								0								
40	k	13	13							13	13	4	16	70				0								0								0								
40	l	6	6							9	9	4	19	127				0								0								0								
40	m	2	2							1	1							0								0								0								
40	n	5	5							7	7	3	14	72				0								0								0								
40	o	5	5							3	3	3	5	29	1			0								0								0								
40	p	3	3							1	1	1		18				0								0								0								
40	q	2	2							2	2	1	4	15				0								0								0								
40	r	0								2	2	1	1	40				0								0								0								
40	s	0								1	1							0								0								0								
40	t	0								0								0								0	1							0								
40	u	0								0								0								0	1							0								
40	v	0								0								0								0								0								
40	w	0								0								0								0							1	0								
40	x	0								0								0								0							1	0								
40	y	0								0								0								0							1	0								
40	z	0								0								0								0							1	0								
41	a	3	3							6	6	1	25	8				2	2	1	8			1		0								0								
41	b	4	4	1	25	27				12	12	2	89	22				12	12	2	1	8		2		1	1							0								
41	c	4	4							6	6							12	12							0								0								
41	d	10	10							10	10	5	11	129				0								0								0								
41	e	16	16							23	23	3	62	33				12	12	2	8	5	13			0								0								
41	f	5	5							5	5	1	5	34				1								0	1							0								
41	g	0								0					1			0								0		1						0								
41	h	0								0					1			0								0								0								
41	i	0								0								0								0								0								
41	j	0								0								0								0								0								
41	k	0								0								0								0							1	1							1	
41	l	0								0								0								0							1	0								
41	m	0								0								0								0							1	0								
42	a	8	8							4	4	2	37	49				6	6							0							1	0								
42	b	5	5	2	41	20				11	11	1	23	7				5	5	1	1	7	4			0								0								
43	a	4	4							6	6	1	13	33				0								0								0								
43	b	1	1							4	4							0								0								0								
43	c	6	6	1	29	3				5	5	2	9	55				0								0								0								
43	d	9	9	2	30	18				3	3	3	47	43				0								0								0								
43	e	4	4							5	5	1	15	10				0								0								0								
43	g	0								0								3	3							0								0								
43	h	0								0								0								0								0								
43	i	0								0								0								0							1	0								
43	j	0								0								0								0							1	0								
44	a	10	10							11	11	2	19	15				4	4							0								0								
44	b	8	8							3	3							3	3	1	4	11				0								0								
44	c	0								0								0						1		0								0								
45	a	0								1	1							0								0								0								
48	a	1	1							3	3							0								0								0								
48	b	2	2							3	3							3	3							0								0								
48	c	8	8	1	22	10				8	8	3	48	36				0								0								0								
50	a	4	4							3	3							0								0								0								

Badger Pass Microwave Site

1990

TR	Plo	pile	pin	CO	R	I	F	A	P	B	D	TS	SC	C
			14	0										
			1	4	4									
			2	1	1									
			3	4	4	1	14	17						
			4	3	3									
			5	12	12	1	24	10						
			6	2	2									
			7	4	4	1	15	19						
			8	1	1									
			9	6	6	4	4	109						
			10	8	8									
			11	6	6									
			12	5	5									
			13	2	2	1	7	17						
			14	1	1									
			15	4	4	1	1			1				
			16	5	5									
			17	2	2	1	13	19						
			18	4	4	1	12	21						
			19	4	4	1				1				
			20	0										
			21	0										
			25	0										
			28	0										
			31	5	5									
			32	3	3	1	11	24						
			44	0										
1	1			0										
1	2	a		0										
1	2	b	37	3	3	1	8	32						
1	2	c	38	2	2	1	8	27						
1	2	d		0										
1	2	e		0										
1	2	f		0										
1	3			0										
1	4			0										
1	5			0										
1	6			0										
1	7			0										
1	8			0										
1	9	a	35	14	14	2	36	35						
1	9	b	34	3	3	1				1				
1	9	c	33	4	4									
1	9	d		0										
1	9	e		0										
1	10			0										
1	11	a	36	3	3	1	8	37						
1	11	b	39	2	2									
1	11	c	40	0										
1	11	d		0										
1	11	e		0										
1	11	e		0										
1	11	f		0										
1	11	g		0										
1	11	h		0										
1	11	j		0										
2	1	a		0										
2	2			0										
2	3			0										
2	4	ab		0										
2	4	c		0										
2	4	d		0										
2	4	e		0										
2	4	f		0										
2	5	a		0										
2	5	b		0										
2	5	c		0										
2	5	d		0										
2	5	e		0										
2	5	f		0										
2	5	g		0										
2	6			0										
2	7			0										
2	8			0										
2	9	a		0										
2	9	b		0										
2	9	c		0										
2	9	d		0										
2	9	e		0										
2	10	a	41	0										
2	10	b	42	0										
2	10	c	43	0										
2	10	d		0										

1991

CO	R	I	F	A	P	B	D	TS	SC	C
1	1									
0										
1	1									
3	3	1	6	6						
4	4									
11	11	3	13	16	1					
1	1	1			1					
5	5	3	31	75						
0										
7	7									
7	7	2	12	64						
4	4									
4	4	1	5	34						
4	4									
3	3									
3	3	3	23	84						
4	4									
5	5	1	11	41						
13	13	4	48	151						
15	15									
0										
0										
0										
0										
3	3	2	8	61						
3	3									
13	13	1	14	27						
0										
2	2									
3	3									
3	3									
0										
0										
0										
0										
0										
0										
0										
0										
0										
4	4	2				2				
1	1									
1	1									
0										
0										
0										
3	3									
1	1									
2	2	1	4	17						
0										
0										
0										
0										
0										
0										
0										
3	3	3	14	35						
0										
0										
8	8	4	18	56						
2	2									
3	3	2	15	4						
0										
0										
1	1									
1	1	1	5	23						
1	1									
5	5	1	8	23						
0										
0										
0										
0										
0										
0										
0										
0										
0										
0										
0										
1	1	1	6	16						
4	4	1	8	14						
3	3									
0										

1992

CO	R	I	F	A	P	B	D	T	S	C
0							x			
1	1									
2	2	1	5	6						
3	3									
17	17	2	19	9						
2	2									
8	8									
1	1									
2	2									
4	4	3	30	36		1				
4	4									
4	4	1	18	23						
3	3									
1	1									
5	5	1	12	13						
5	5	3	14	22	7	2				
4	4	3	7	18		1				
18	18	5	61	76						
0							x			
0										
0										
0										
0										
3	3	2	5	16						
7	7	2	6	16						
19	19	1				1				
0										
2	2									
3	3									
2	2									
0										
0										
0										
0										
0										
0										
0										
0										
0										
4	4	1	2	8		1				
1	1									
1	1	1		1						
0										
0										
0										
2	2									
1	1									
1	1	1	2	13						
0										
0										
0										
0										
0										
0										
0										
6	6	1	0	4		1				
0										
0										
11	11	2	0			2				
0										
6	6	4	4	13		2				
0										
0										
1										1
0							x			
3	3									
3	3									
2	2	1	1			1				
0										
0										
0										
0										
0										
1	1									
1	1									
1	1									
1	1									
1	1									
2	2									
4	4	1				1				
3	3	3	8	36						
4	4									

1993

CO	R	I	F	A	P	B	D	T	S	C
0							x			
1	1		1	55						
1	1									
2	2									
14	14		1	40		1				
2	2									
7	7		1			1				
1	1									
2	2									
4	4									
2	2		2	84						
3	2		2	182						1
2	2		1	70						
1	1									
6	5		2	81						1
7	7		1	72						
6	5									1
14	14		10	465		3				
0							x			
0										
0										
0										
0										
3	3									
7	7									
14	14									
0										
2	1									1
3	3									
2	2		2			2				
0								1		
0								1		
0								1		
0										
0										
0										
0										
0										
0										
5	5		1			1				
1	1									
2										2
0								1		
0								1		
0										
2	2									
1	1									
2	2									
0								1		
0								1		
0								1		
0								1		
0								1		
0								1		
0								1		
6	5									1
0										
0										
8	7		1			1				1
0										
6	6									
0										
0										
1	1									
0										
4	1									3
4	2									2
1	1		1			1				
0								1		
0										
0										
0										
0										
1	1									
1	1									
1	1									
2	2									
3	2									
1	1									1
4	3		1	21						1
4	2									2
2	1									1

1994

CO	R	I	F	A	P	B	D	T	S	C
0										
2	2									
1	1	1	5	23						
2	2									
11	11	3	26	61						
1	1	1	1	23						
7	7									
0							x			
2	2	1	0	43						
1	1	2	0	106						
5	1									4
3	3	2	0	37						
4	4	2	0	37						
3	2	1	0	4						1
6	6	1	2	29						
10	10									
8	8	2	8	40		1				
23	23									
0										
0										
0										
0										
0										
4	4	3	3	100						
3	3	4	7	66						
9	2	3	12	95						7
0										
2										2
5	2									3
5	5	1	0	14						
0										
0										
0										
0										
0										
0										
0										
0										
0										
10	10									
1	1									
1										1
1									1	
1									1	
0										
2	2	1	1	42						
4	1	1	1	26						3
1	1	1	0	38						
0							x			
0							x			
0							x			
0							x			
0							x			
0							x			
0							x			
5	1									4
0										
0										
8	7									1
0										
5	5	4	7	97		1				
0										
0										
1										1
0										
3	1									2
1	1									
3		1	2	38						3
0							x			
0										
0										
0										
0										
4		1	0	33						4
1	1									
2		1	6	41						2
0	?	1	9	31						
4	3	1	7	38						1
1	1									
4	4									
2	2									
3										3

1995

Plo pile	CO	R	I	F	A	P	B	D	T	S	C
	0							X			
	3	3									
	2	2									
	2	2	1	7	20						
	11	11	7	113	158						
	1	1	1	5	4						
	1	1	1	4	3						
	3	3	1								
	2	2									
	3	3									
	3	3									
	3	3	2	13	25						
	5	5	2	24	30						
	5	5	1	26	3						
	6	6	3	25	51						
	13	13	8	0	360						
	8	8	2	1	116		2				
	10	10	3	0	140						
	0							X			
	0							X			
	0							X			
	0										
	0										
	7	7	2	42	76						
	5	5	1	4	20						
	0							X			
1	0										
2 a	2	2									
2 b	4	4	2	27	80						
2 c	5	5	3	17	51		1				
2 d	0										
2 e	0										
2 f	0										
3	0										
4	0										
5	0										
6	0										
7	0										
8	0										
9 a	10	10	6	49	70						
9 b	1	1									
9 c	0							X			
9 d	1										1
9 e	1										1
10	0										
11 a	9	9	2	6	10						
11 b	3	3	1	3	10						
11 c	2	2	1	13	18						
11 d	0										
11 e	0										
11 e	0										
11 f	0										
11 g	0										
11 h	0										
11 j	0										
1 a	4	4									
2	0										
3	0										
4 ab	5	5	2	18	22						
4 c	0										
4 d	4	4	1	20	46						
4 e	0								1		
4 f	3									1	2
5 a	1	1									
5 b	0										
5 c	1	1									
5 d	1	1									
5 e	2	2									
5 f	0										
5 g	0								1		
6	0										
7	0										
8	0										
9 a	5	5									
9 b	1	1									
9 c	1	1									
9 d	2	2									
9 e	4	4									
10 a	2	2									
10 b	2	2	1	5	4						
10 c	1	1									
10 d	1	1									

Badger Pass Microwave Site

TR	Plo	plle	pln	1990 CO	R	I	F	A	P	B	D	TS	SC	C
2	10	e		0										
2	10	f		0										
2	10	g		0										
2	10	h		0										
3	1			0										
3	2			0										
3	2	a	30	0										
3	2	b	29	1	1									
3	3	a		0										
3	3	b	24	7	7	2	23	31		1				
3	3	c	27	6	6									
3	3	d	23	5	5	2	1	3		1				
3	3	e	22	8	8	2	6	10		1				
3	3	f		0										
3	3	g		0										
3	3	h		0										
3	3	i(a)		0										
3	3	j(b)	26	1	1									
3	3	k(c)		0										
3	4			0										
3	4			0										

1991 CO	R	I	F	A	P	B	D	TS	SC	C
0										
0										
0										
0										
0										
0										
7	7	1	15	38						
4	4	1	6	27						
1	1									
12	12	1	2	3		1				
8	8	1				1				
5	5	3	17	45						
8	8	2	1	4		2				
0										
0										
0										
1	1									
3	3									
1	1									
0							x			
1	1									
2	2									
0							x			
0							x			

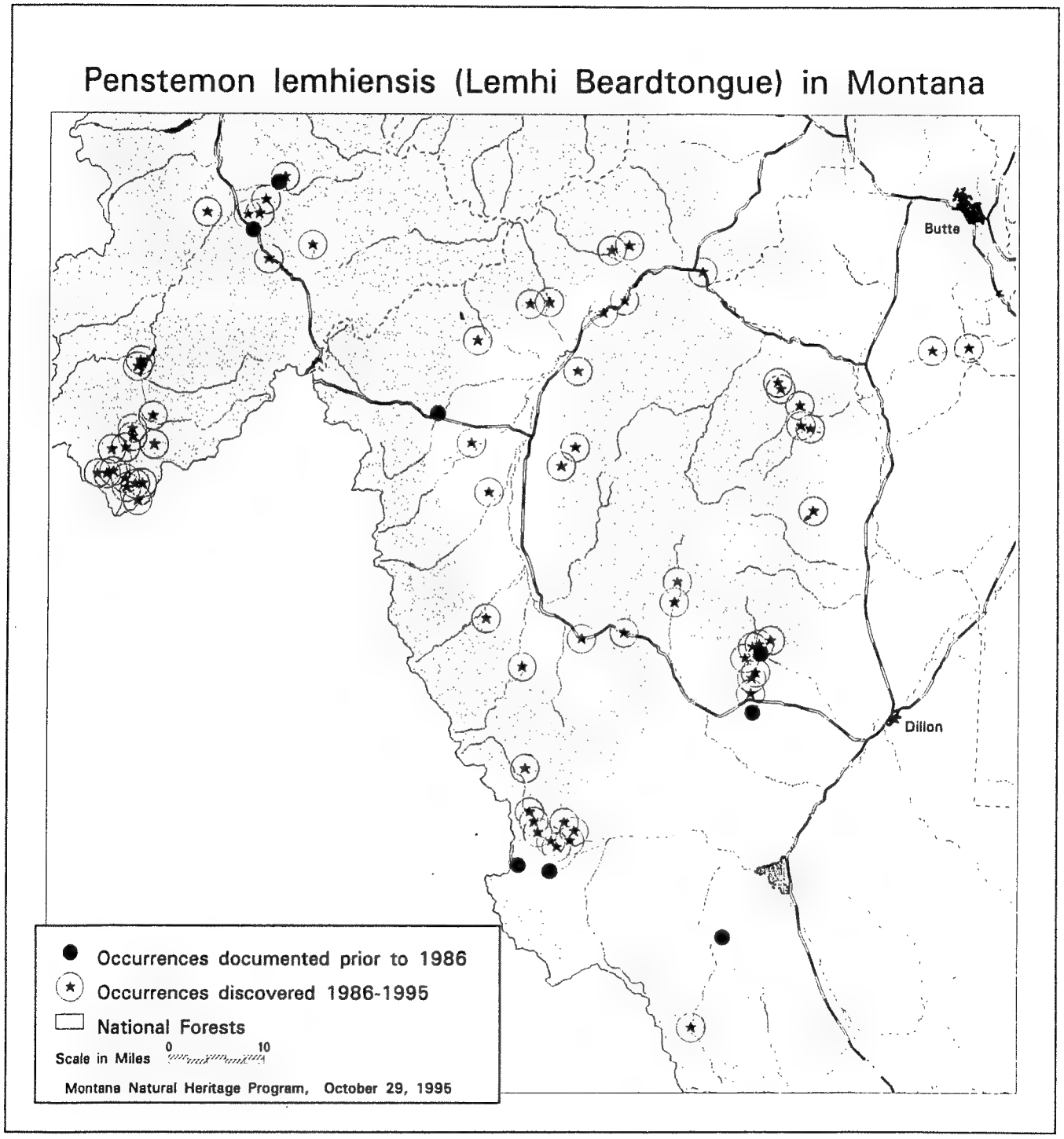
1992 CO	R	I	F	A	P	B	D	T	S	C
4	4									
0										
0										
0										
0										
0										
8	8									
4	4									
1	1									
7	7									
7	7									
3	3									
5	5	3				3				
1	1									
1	1									
1	1									
0										
1	1									
2	2									
0										
0										

1993 CO	R	I	F	A	P	B	D	T	S	C
11	7									
1										
0										
0										
0										
0										
8	7									
6	6									
0										
7	7	1	24							
4	4	1								
3	3	2	23							
7	6	1								
2	2									
1	1									
1	1									
0										
4	4									
4	4									
0										
0										

1994 CO	R	I	F	A	P	B	D	T	S	C
8	1									7
0							x			
0							x			
1										1
0										
0										
7	7	1				1				
10	10	4				4				
0										
3	2	4	6	23		2			1	
5	5	1	1							
4	4	1				1				
7	7	3	0	23		2				
3	3									
1	1									
1	1									
0										
6	6	1	1							
8	8	1				1				
0										
0										

1995 CO	R	I	F	A	P	B	D	T	S	C
2	2									
0										
0										
0								X		
0										
0									1	
10	10	3	9	15						
7	7	1	29	18						
0										
8	8	1	17	13						
4	4									
4	4	2	22	21						
8	8	5	58	61						
5	5									
1	1									
1	1									
0										
11	11									
7	7	3	41	22						
0										
0										

APPENDIX B. PENSTEMON LEMHIENSIS ELEMENT OCCURRENCES IN MONTANA



July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.001
Element occurrence type:

Survey site name: ARGENTA
EO rank: B
EO rank comments: LARGE POPULATION, OCCURS PARTIALLY ON DISTURBED ROADBANK.

County: BEAVERHEAD

USGS quadrangle: ERMONT

Township:	Range:	Section:	TRS comments:
06S	011W	15	SE4; 22 NE4; 23 NW4NW4

Precision: S
Survey date: 1986-06-20 Elevation: 6700 -
First observation: 1976 Slope/aspect:
Last observation: 1988 Size (acres): 10

Location:
SOUTH PIONEER MOUNTAINS, NORTH SIDE OF BLACK MOUNTAIN ROAD (BEAVERHEAD N.F. ROAD 2400), 0.2 MILE WEST OF RATTLESNAKE CREEK ROAD (N.F. ROAD 192), CA. 4 AIR MILES WNW. OF ARGENTA.

Element occurrence data:
206 PLANTS COUNTED IN 1986 (204 ON PRIVATE INHOLDING, 2 ON U.S.F.S. LAND); 100 PLANTS COUNTED IN 1988 (K. SCOW); A FEW PLANTS OCCUR ON ROADBANKS; LOW LEVEL OF GRAZING; WEED INVASION ALONG THE ROAD.

General site description:
MODERATELY STEEP, SOUTHEAST TO SOUTHWEST-FACING SLOPES; MOST FREQUENT IN SPARSELY VEGETATED, ROCKY AREAS; ARTEMISIA TRIDENTATA/ FESTUCA IDAHOENSIS/AGROPYRON SPICATUM, WITH BROMUS, SENECIO.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, DILLON RANGER DISTRICT
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:

Information source: SHELLY, J. S. 1986. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 18-22 JUNE.]

Specimens: WATSON, T. J. (1277). 1976. MONTU.
SHELLY, J. S. (1140) & G. V. KING. 1986. MONTU.
ELOFSON (S.N.). MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.002
Element occurrence type:

Survey site name: TRAIL CREEK
EO rank: D
EO rank comments: SMALL SUBPOPULATIONS ALONG ROAD.

County: BEAVERHEAD

USGS quadrangle: EVERSON CREEK
LEMHI PASS

Township:	Range:	Section:	TRS comments:
10S	014W	18	S2; 17 SW4; 19 NW4
10S	015W	24	NE4

Precision: S
Survey date: 1986-06-22 Elevation: 6520 -
First observation: 1970-07-05 Slope/aspect: 40% / SE
Last observation: 1989-06-29 Size (acres): 13

Location:
TRAIL CREEK, ALONG ROAD TO LEMHI PASS (BEAVERHEAD N.F. RD. 3909.2), CA. 3.5-4.5 AIR MI. ESE. OF LEMHI PASS.

Element occurrence data:
70-100 PLANTS, 6 SUBPOPULATIONS; IN FULL FLOWER; MOST PLANTS OCCUR ALONG ROADSIDE.

General site description:
SANDY TO GRAVELLY LOAM SOILS, ON ALLUVIAL FAN AND ALONG ROAD; SAGEBRUSH, ARTEMISIA TRIDENTATA/POA SECUNDA, WITH BROMUS TECTORUM, SITANION HYSTRIX, CHRYSOTHAMNUS NAUSEOSUS AND ERIOGONUM OVALIFOLIUM VAR NEVADENSE.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:

Information source: SHELLY, J. S. 1986. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 18-22 JUNE.]

Specimens: WATSON, T. J. (1279). 1976. MONTU.
STICKNEY, P.F. (2107). 1970. MRC.
SCHASSBERGER, L.A. (299). 1989.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

cientific Name: PENSTEMON LEMHIENSIS
ommon Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
tate rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.003
lement occurrence type:

urvey site name: LEMHI PASS
EO rank: C
O rank comments: MODERATE-SIZED POPULATIONS, IN NATIVE HABITAT & ALONG ROAD.

County: BEAVERHEAD

SGS quadrangle: LEMHI PASS

Township:	Range:	Section:	TRS comments:
10S	015W	15	SE4NW4, NE4SE4; 14 SW4

Precision: S
Survey date: 1986-06-22 Elevation: 6960 -
irst observation: 1983 Slope/aspect:
Last observation: 1989-06-29 Size (acres): 15

ocation:
NORTH SIDE OF LEMHI PASS ROAD (BEAVERHEAD N.F. RD. 3909.2), 1.0-1.6 AIR MILES SE. OF LEMHI PASS, CA. 1.4-2.0 MILES WEST OF SELWAY RANCH.

lement occurrence data:
164 PLANTS COUNTED, 3 SUBPOPULATIONS; CA. 90% OF THE PLANTS OCCUR ON NATIVE SAGEBRUSH SLOPES ABOVE THE ROAD; SPECIES OCCURS IN MORE OPEN, GRAVELLY AREAS.

eneral site description:
GRAVELLY LOAM SOILS, ON SW. TO SE.-FACING SLOPES; ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS, WITH PHACELIA HETEROPHYLLA, BROMUS TECTORUM, LUPINUS, PHLOX, POA, ACHILLEA, ROSA, MAHONIA REPENS, GERANIUM VISCOSISSIMUM, HELIANTHELLA UNIFLORA, ERIOGONUM UMBELLATUM VAR INTECTUM AND VAR SUBALPINUM.

and owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

omments:

Information source: SCHASSBERGER, L. A. 1989. [MTNHP FIELD SURVEYS OF SOUTHWEST MONTANA, 26-30 JUNE (PENSTEMON LEMHIENSIS).]

pecimens: SHELLY, J. S. (1155) AND G.V. KING. 1986. MONTU.
SCHASSBERGER, L. A. (302). 1989.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.004
Element occurrence type:

Survey site name: NORTH FORK RYE CREEK
EO rank: C
EO rank comments: FAIRLY SMALL POPULATION, IN WEEDY HABITAT.

County: RAVALLI

USGS quadrangle: ROBBINS GULCH

Township:	Range:	Section:	TRS comments:
03N	020W	25	NW4SW4, SW4NW4

Precision: S
Survey date: 1989-06-26 Elevation: 4320 -
First observation: 1952 Slope/aspect: 35% / WEST
Last observation: 1989-06-26 Size (acres): 3

Location:
WESTERN FOOTHILLS OF THE SAPPHIRE MOUNTAINS, NORTH FORK RYE CREEK DRAINAGE, EAST SIDE OF BITTERROOT N.F. RD. #321, 0.2 AND 0.35 MILES NORTH OF RYE CREEK RD. (#75), CA. 7.5 AIR MILES ESE OF DARBY.

Element occurrence data:
TWO SUBPOPULATIONS; 72 PLANTS (SOUTH), WITH 65 ON SLOPE ABOVE ROADCUT; 11 PLANTS (NORTH), ALL ON ROADCUT; HABITAT HEAVILY INFESTED WITH WEEDS; LARGEST POPULATION KNOWN IN RAVALLI COUNTY.

General site description:
SANDY TO GRAVELLY GRANITIC SOILS, ON STEEP WEST-FACING SLOPES; PINUS PONDEROSA/PURSHIA TRIDENTATA HABITAT, WITH AGROPYRON SPICATUM, KOELERIA CRISTATA, PENSTEMON ALBERTINUS, BALSAMORHIZA SAGITTATA, PHACELIA LINEARIS, GERANIUM VISCOSISSIMUM, CENTAUREA MACULOSA, BROMUS TECTORUM, LITHOSPERMUM RUDERALE, MELILOTUS OFFICINALIS.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
PROBABLE RELOCATION OF HISTORICAL RECORD, WRIGHT, 1952: "10 MILES E. OF DARBY, SAPPHIRE MTS. FOOTHILLS, SANDY GRANITIC SOIL, PONDEROSA PINE ZONE."

Information source: SHELLY, J. S. 1989. [FIELD SURVEYS IN RAVALLI COUNTY, 26-29 JUNE (PENSTEMON LEMHIENSIS).]

Specimens: SHELLY, J. S. (1565) AND A. KRATZ. 1989.
WRIGHT, J. C. (S.N.), 1952. MONT.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

cientific Name: PENSTEMON LEMHIENSIS
ɔmmon Name: LEMHI BEARDTONGUE

'lobal rank: G3 Forest Service status: SENSITIVE
tate rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.005
'lement occurrence type:

ɔurvey site name: BADGER PASS
EO rank: B
'O rank comments: LARGE POPULATION, MOSTLY NATIVE HABITAT, FENCE EXCLOSURE.

County: BEAVERHEAD

'SGS quadrangle: BANNACK

'ownship: Range: Section: TRS comments:
'07S 011W 22 N2NW4

Precision: S
Survey date: 1986-06-20 Elevation: 7260 -
'irst observation: 1972-06-27 Slope/aspect: 35% / SW, E-NE
'Last observation: 1989-06-14 Size (acres): 10

ɔocation:
1.45 AIR MILES SSE. OF BADGER PASS, ADJACENT TO MICROWAVE TOWER ON GRAVEL ROAD 1.3 AIR MI. S. OF BIG HOLE ROAD (ST. HWY. 278), CA. 4.5 AIR MI. NNE. OF BANNACK.

'lement occurrence data:
1989: VERY FEW PLANTS OBSERVED, AND NONE FOUND INSIDE EXCLOSURE. 1986: 190 PLANTS COUNTED; CA. 75 PLANTS ARE WITHIN A FENCE EXCLOSURE WHICH WAS CONSTRUCTED TO PROTECT PART OF THE POPULATION. 1972: SCARCE.

General site description:
GRAVELLY LOAM SOILS, MIDSLOPE; ARTEMISIA TRIDENTATA/ PSEUDOTSUGA MENZIESII/FESTUCA IDAHOENSIS/AGROPYRON SPICATUM, LUPINUS LEUCOPHYLLUS, ANTENNARIA MICROPHYLLA, GEUM, SEDUM, PINUS FLEXILIS, SELAGINELLA DENSA.

ɔand owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

ɔomments:

Information source: SHELLY, J. S. 1986. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 18-22 JUNE.]

Specimens: SHELLY, J. S. (1147) AND G.V. KING. 1986. MONTU.
KOVALCHICK, B. L. (199). 1972. MRC.

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.006
Element occurrence type:

Survey site name: BIG HOLE NATIONAL BATTLEFIELD
EO rank: B
EO rank comments: LARGE POPULATION; PORTION OF HABITAT RECENTLY BURNED.

County: BEAVERHEAD

USGS quadrangle: BIG HOLE BATTLEFIELD

Township:	Range:	Section:	TRS comments:
002S	017W	24	W2SE4; 13 SW4; 23 SE4

Precision: S
Survey date: 1983-07-26 Elevation: 6320 -
First observation: 1976 Slope/aspect:
Last observation: 1992-07-13 Size (acres): 50

Location:
BIG HOLE NATIONAL BATTLEFIELD, 9 MILES WEST OF WISDOM ON HWY. 43.

Element occurrence data:
FOUR SUBPOPULATIONS, WITH 447 PLANTS (SOUTH OF "SIEGE AREA" AND ROADCUT ALONG SLOPE), "HUNDREDS" (NORTH OF "SIEGE AREA"), AND CA. 40 BELOW VISITOR'S CENTER. 10 PLANTS LOCATED OUTSIDE BATTLEFIELD BOUNDARIES; 50% FLOWERING, 25% FRUITING, 25% VEGETATIVE.

General site description:
SAGEBRUSH STEPPE PORTION OF SOUTHEAST FACE OF BATTLE MOUNTAIN, AND ON NORTHWEST-FACING BENCHLAND BELOW VISITOR'S CENTER; ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM/FESTUCA IDAHOENSIS.

Land owner/manager:
BIG HOLE NATIONAL BATTLEFIELD
BEAVERHEAD NATIONAL FOREST, WISDOM RANGER DISTRICT

Comments:
SITE REVISITED AND NEW SUBPOPULATION LOCATED OUTSIDE BATTLEFIELD BOUNDARIES IN 1992 BY QUINN CARVER.

Information source: PIERCE, JOHN. USFS, REGION 1, RAWE, FEDERAL BUILDING, 200 EAST BROADWAY, P.O. BOX 7669, MISSOULA, MT 59807. 406/329-3390.

Specimens: HITCHCOCK (19189). NO DATE. WTU.
WATSON, T. J. (1271). 1976. SPECIMEN #093357. MONTU.
PIERCE, J. (798). 1980. SPECIMEN #86884. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.007
Element occurrence type:

Survey site name: MEDICINE TREE CREEK
EO rank: D
EO rank comments: VERY SMALL POPULATION, MOSTLY ON ROADSIDE, WEEDY AREA.

County: RAVALLI

USGS quadrangle: ROBBINS GULCH

Township:	Range:	Section:	TRS comments:
002N	020W	21	NE4SE4, SW4NE4

Precision: S
Survey date: 1989-06-29
First observation: 1950
Last observation: 1989-06-29
Elevation: 4150 -
Slope/aspect: 8-35% / S,SW
Size (acres): 2

Location:
EAST FORK BITTERROOT RIVER DRAINAGE, NORTH SIDE OF U.S. HWY. 93, 0.1 MI. WEST OF MEDICINE TREE CREEK, AND 0.3 AIR MI. NORTHWEST OF HWY. BRIDGE OVER CREEK, CA. 2.5 MILES SOUTHEAST OF CONNER.

Element occurrence data:
10 PLANTS OBSERVED, 7 ON ROADCUT, 3 ON SLOPES ABOVE.

General site description:
GRANITIC, GRAVELLY TO SANDY LOAM SOILS, ON ROADCUT AND WEEDY SLOPES; PINUS PONDEROSA/PURSHIA TRIDENTATA HABITAT, WITH CENTAUREA MACULOSA, BROMUS TECTORUM, KOELERIA CRISTATA, BALSAMORHIZA SAGITTATA, PHACELIA LINEARIS, P. HETEROPHYLLA, PHYSARIA GEYERI, ALYSSUM ALYSSOIDES, AGROPYRON SPICATUM, VERBASCUM THAPSUS, ARABIS HOLBOELLII.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
POSSIBLE RELOCATION OF MCCALL, 1950: "BETWEEN CONNER AND SULA, ON ROCKY HILLSIDE ABOVE RIVER."

Information source: SHELLY, J. S. 1989. [FIELD SURVEYS IN RAVALLI COUNTY, 26-29 JUNE (PENSTEMON LEMHIENSIS).]

Specimens: SHELLY, J. S. (1568) AND A. KRATZ. 1989.
MCCALL, T. G. & V. C. (352). 1950. SPECIMEN #49394. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.008
Element occurrence type:

Survey site name: JOHNSON GULCH
EO rank:
EO rank comments:

County: BEAVERHEAD

USGS quadrangle: DEER CANYON

Township:	Range:	Section:	TRS comments:
011S	011W	18	SE4

Precision: M
Survey date: 1984-07-06 Elevation: 6500 -
First observation: 1984 Slope/aspect:
Last observation: 1984-07-06 Size (acres): 0

Location:
NORTH SIDE OF JOHNSON GULCH, ALONG THE ROAD CA. 10 MI. SE. OF GRANT.

Element occurrence data:
ONE PLANT (SPECIMEN IS ONE TOPSNATCHED STEM).

General site description:
SILTY SOIL OF A BENCH; WITH ARTEMISIA TRIDENTATA AND AGROPYRON SPICATUM.

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:

Information source: LESICA, PETER. DIVISION OF BIOLOGICAL SCIENCES, UNIVERSITY OF MONTANA, MISSOULA, MT 59812. PHONE 406/728-8740.

Specimens: LESICA, P. (3110). 1984. SPECIMEN #06215. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

cientific Name: PENSTEMON LEMHIENSIS
ommon Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
tate rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.009
lement occurrence type:

urvey site name: FRENCH CREEK
EO rank: B
O rank comments: LARGE POPULATION; NATIVE HABITAT, BUT NEAR ROAD AND MINES.

County: BEAVERHEAD

SGS quadrangle: ERMONT

Township:	Range:	Section:	TRS comments:
06S	011W	11	E2; 14 NE4NW4; 02 SE4SE4; 01 W2SW4

Precision: S
Survey date: 1986-06-19 Elevation: 7000 -
irst observation: 1986 Slope/aspect:
Last observation: 1989-07-27 Size (acres): 40

ocation:
PIONEER MOUNTAINS, SLOPES ALONG WEST SIDE OF FRENCH CREEK, ALONG THE FRENCH CREEK-THIEF CREEK ROAD (FS RD 606), 4 AIR MILES NORTHWEST OF ARGENTA; ALSO, MOUTH OF RED GULCH.

lement occurrence data:
138 PLANTS COUNTED (CA. 150 TOTAL) IN MAIN POPULATION, WITH 22 PLANTS COUNTED IN SUBPOPULATION AT THE MOUTH OF RED GULCH (1986); 1845 PLANTS, IN 13 SUBPOPULATIONS, COUNTED IN 1988 (K. SCOW); AREA SUBJECT TO MINING DISTURBANCE; TWO MONITORING TRANSECTS ESTABLISHED IN 1989.

eneral site description:
STEEP, E. & SE.-FACING SLOPES, IN GRAVELLY LOAM SOILS; ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS/AGROPYRON SPICATUM, WITH JUNIPERUS SCOPULORUM, PSEUDOTSUGA MENZIESII, ARTEMISIA FRIGIDA.

and owner/manager:
BEAVERHEAD NATIONAL FOREST, DILLON RANGER DISTRICT

omments:

nformation source: SHELLY, J. S. 1986. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 18-22 JUNE.]

Specimens: SHELLY, J. S. (1130) AND G. V. KING. 1986. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.010
Element occurrence type:

Survey site name: QUARTZ HILL GULCH
EO rank: B
EO rank comments: GOOD POPULATION, MOSTLY IN NATIVE HABITAT; SOME ALONG ROAD.

County: BEAVERHEAD

USGS quadrangle: VIPOND PARK

Township:	Range:	Section:	TRS comments:
001S	011W	26	E2SE4

Precision: S
Survey date: 1986-07-08 Elevation: 8000 -
First observation: 1986 Slope/aspect:
Last observation: 1986-07-08 Size (acres): 15

Location:
HEAD OF QUARTZ HILL GULCH, ALONG BEAVERHEAD N.F. RD. 187; 0.7 AIR MILES ENE. OF GRAY JOCKEY PEAK, CA. 5 AIR MI. SSE. OF WISE RIVER, PIONEER MOUNTAINS.

Element occurrence data:
203 PLANTS COUNTED, IN FLOWER; NEARBY AREAS SUBJECT TO MINING DISTURBANCE.

General site description:
EAST-FACING SLOPE, ON CLAY LOAM SOILS; OPENINGS IN PINUS CONTORTA/PSEUDOTSUGA MENZIESII FOREST, WITH JUNIPERUS COMMUNIS, TOWNSENDIA PARRYI, PEDICULARIS CONTORTA.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, WISE RIVER RANGER DISTRICT

Comments:

Information source: SHELLY, J. S. 1986. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 8-9 JULY.]

Specimens: SHELLY, J. S. (1192). 1986. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.011
Element occurrence type:

Survey site name: ECHO GULCH
EO rank: AB
EO rank comments: LARGE POPULATION, MOSTLY IN UNDISTURBED HABITAT.

County: BEAVERHEAD

USGS quadrangle: VIPOND PARK

Township:	Range:	Section:	TRS comments:
001S	011W	36	W2; 35 E2SE4

Precision: S
Survey date: 1986-07-08 Elevation: 8100 -
First observation: 1986 Slope/aspect:
Last observation: 1986-07-08 Size (acres): 45

Location:
NEAR HEAD OF ECHO GULCH, SLOPES 0-0.5 AIR MILE NORTH OF VIPOND PARK, ALONG BEAVERHEAD N.F. ROAD 187; 0.5-0.75 AIR MILE WEST AND SOUTHWEST OF QUARTZ HILL, PIONEER MOUNTAINS.

Element occurrence data:
252 PLANTS COUNTED IN SOUTH SUBPOPULATION, 100-150 PLANTS IN NORTH SUBPOPULATION; IN FLOWER; MINING TEST PITS OBSERVED NEAR NORTH SUBPOPULATION.

General site description:
SOUTH AND EAST-FACING SLOPES, ON GRAVELLY SILT LOAM SOILS; PINUS CONTORTA/GRASSLAND, WITH PEDICULARIS CONTORTA, TOWNSENDIA PARRYI, ANTENNARIA MICROPHYLLA, FESTUCA IDAHOENSIS.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, WISE RIVER RANGER DISTRICT

Comments:
AREA NEEDS ADDITIONAL SURVEY.

Information source: SHELLY, J. S. 1986. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 8-9 JULY.]

Specimens: SHELLY, J. S. (1199). 1986. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.012
Element occurrence type:

Survey site name: RED BUTTE
EO rank: B
EO rank comments: MODERATE-SIZED POPULATION; HABITAT IN GOOD CONDITION.

County: BEAVERHEAD

USGS quadrangle: ERMONT

Township:	Range:	Section:	TRS comments:
006S	011W	15	NE4; 10 S2

Precision: S
Survey date: 1986-06-19 Elevation: 6800 -
First observation: 1986 Slope/aspect:
Last observation: 1989-07-27 Size (acres): 20

Location:
CA. 4.5 AIR MI. NW. OF ARGENTA, CENTERED 0.5 AIR MI. ESE. OF RED BUTTE, RATTLESNAKE CREEK DRAINAGE CA. 1 MI. SE. OF KELLY RESERVOIR, PIONEER MOUNTAINS.

Element occurrence data:
142 PLANTS COUNTED IN MAIN SUBPOPULATION (CENTRUM), 169 TOTAL, 3 SUBPOPULATIONS (1986); NO PLANTS OBSERVED IN MAIN SUBPOPULATION IN 1988 (K. SCOW), AND ONLY CA. 12 IN 1989 (SHELLY); MAIN POPULATION NEAR, BUT NOT RIGHT ALONG, A LIGHTLY-USED GRAVEL ROAD.

General site description:
S. AND SW.-FACING SLOPES, LOAMY SOILS; ARTEMISIA TRIDENTATA/ FESTUCA IDAHOENSIS/AGROPYRON SPICATUM, WITH SENECIO CANUS, PHACELIA LINEARIS, KOELERIA MACRANTHA, PSME.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, DILLON RANGER DISTRICT

Comments:

Information source: SHELLY, J. S. 1986. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 18-22 JUNE.]

Specimens: SHELLY, J. S. (1133) AND G. V. KING. 1986. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.013
Element occurrence type:

Survey site name: BLACK MOUNTAIN ROAD
EO rank: C
EO rank comments: SMALLER POPULATION, MANY PLANTS ON ROADSIDE.

County: BEAVERHEAD

USGS quadrangle: ERMONT

Township:	Range:	Section:	TRS comments:
006S	011W	21	W2SE4NE4; 20 SE4SE4

Precision: S
Survey date: 1986-06-20 Elevation: 7200 -
First observation: 1986 Slope/aspect:
Last observation: 1986-06-20 Size (acres): 20

Location:
CA. 5 AIR MI WNW. OF ARGENTA, ALONG BLACK MOUNTAIN ROAD (BEAVERHEAD N.F. RD. #2400) CA. 3 AIR MI. SSE. OF BLACK MOUNTAIN, PIONEER MOUNTAINS.

Element occurrence data:
CA. 100-125 PLANTS TOTAL, MAINLY IN TWO SUBPOPULATIONS AND SCATTERED ALONG ROADSIDE; IN FLOWER.

General site description:
EAST AND SE.-FACING SLOPES, RED-COLORED LOAM SOILS; ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS, WITH PHACELIA LINEARIS, ERIOGONUM, ASTER, BERBERIS.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, DILLON RANGER DISTRICT

Comments:

Information source: SHELLY, J. S. 1986. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 18-22 JUNE.]

Specimens: SHELLY, J. S. (1142) AND G. V. KING. 1986. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.014
Element occurrence type:

Survey site name: ERMONT GULCH
EO rank: C
EO rank comments: SMALL POPULATION, NATIVE HABITAT IMPACTED BY GRAZING.

County: BEAVERHEAD

USGS quadrangle: ERMONT

Township:	Range:	Section:	TRS comments:
006S	011W	33	NE4SE4; 34 W2

Precision: S
Survey date: 1986-06-20 Elevation: 6740 -
First observation: 1986 Slope/aspect:
Last observation: 1989-07-27 Size (acres): 5

Location:
CA 4.3 AIR MI. WSW. OF ARGENTA, ALONG BEAVERHEAD N.F. RD. #7467 AT HEAD OF ERMONT GULCH, CA. 2.2 AIR MI. N. OF BADGER PASS, PIONEER MOUNTAINS.

Element occurrence data:
76 PLANTS COUNTED (1986); ONLY ONE PLANT SEEN IN 1989; AREA SUBJECT TO MODERATE TO HEAVY GRAZING.

General site description:
SE-FACING SLOPE, LOAM SOILS; ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS, ANTENNARIA MICROPHYLLA, KOELERIA MACRANTHA, COMANDRA UMBELLATA, ERIOGONUM.

and owner/manager:
BEAVERHEAD NATIONAL FOREST, DILLON RANGER DISTRICT
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:

Information source: SHELLY, J. S. 1986. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 18-22 JUNE.]

Specimens: SHELLY, J. S. (1146) AND G. V. KING. 1986. MONTU.

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.015
Element occurrence type:

Survey site name: ROBERTS GULCH
EO rank: B
EO rank comments: SMALL POPULATION, NATIVE HABITAT IN GOOD CONDITION.

County: BEAVERHEAD

USGS quadrangle: COYOTE CREEK

Township:	Range:	Section:	TRS comments:
009S	014W	33	N2SE4

Precision: S
Survey date: 1986-06-22 Elevation: 6520 -
First observation: 1986 Slope/aspect:
Last observation: 1994-06-28 Size (acres): 5

Location:
MOUTH OF ROBERTS GULCH, CA. 1 AIR MI. NW. OF BLOODY DICK CREEK, CA. 12.5 AIR MI. WEST OF GRANT AND 6.5 AIR MI. ENE. OF LEMHI PASS.

Element occurrence data:
54 PLANTS COUNTED; IN FLOWER. 1994: 9 PLANTS IN FLOWER, EARLY FRUIT, 6 PLANTS VEGETATIVE, SEEDLINGS NOT SEARCHED FOR.

General site description:
EAST-FACING SLOPE ALONG SMALL DRAINAGE, LOAM SOILS. HABITAT RELATIVELY UNDISTURBED, SOME GRAZING USE. ASSOCIATED SPECIES: ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM, CHRYSOTHAMNUS VISCIDIFLORUS, ARTEMISIA FRIGIDA, LUPINUS, ANTENNARIA.

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:

Information source: SHELLY, J. S. 1986. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 18-22 JUNE.]

Specimens: SHELLY, J. S. (1156) AND G. V. KING. 1986. MONTU.

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.016
Element occurrence type:

Survey site name: TRAPPER CREEK
EO rank: D
EO rank comments: SMALL, VULNERABLE ROADSIDE POPULATION.

County: BEAVERHEAD

USGS quadrangle: CATTLE GULCH

Township:	Range:	Section:	TRS comments:
002S	010W	20	W2SE4; 29 NW4NW4

Precision: S
Survey date: 1987-06-16 Elevation: 6800 - 7040
First observation: 1987-06-16 Slope/aspect:
Last observation: 1992-07-10 Size (acres): 5

Location:
PIONEER MOUNTAINS, TRAPPER CREEK DRAINAGE, ALONG BEAVERHEAD N.F. RD. #188; ABOUT 10 MILES WEST OF MELROSE; ABOUT 1 AIR MILE SSE. OF ORE CAMP HILL.

Element occurrence data:
1992: 8-10 PLANTS, ALL ROBUST, TALL AND FLOWERING. 1987: 18 PLANTS COUNTED; FLOWERING; POPULATION OCCURS RIGHT ALONG ROADSIDE.

General site description:
GRAVELLY LOAM SOILS, ON ROADSIDE; ARTEMISIA TRIDENTATA/ AGROPYRON SPICATUM/FESTUCA IDAHOENSIS, GERANIUM VISCOSISSIMUM, ERIOGONUM UMBELLATUM, ANTENNARIA ROSEA, FRAGARIA VIRGINIANA, GEUM TRIFLORUM.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, WISE RIVER RANGER DISTRICT

Comments:
SOUTHERN SUBPOPULATION LOCATED IN 1992 BY D. SVOBODA.

Information source: SHELLY, J. S. 1987. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 16-19 JUNE.]

Specimens: SHELLY, J. S. (1335). 1987. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.017
Element occurrence type:

Survey site name: BROWNES LAKE
EO rank: D
EO rank comments: SMALL POPULATION; PARTIALLY ALONG ROADSIDE.

County: BEAVERHEAD

USGS quadrangle: STORM PEAK

Township:	Range:	Section:	TRS comments:
003S	010W	34	S2SW4

Precision: S
Survey date: 1987-06-17 Elevation: 6650 -
First observation: 1987 Slope/aspect:
Last observation: 1987-06-17 Size (acres): 1

Location:
PIONEER MOUNTAINS, ROCK CREEK DRAINAGE, ALONG ROCK CREEK ROAD ABOUT 6 MILES WEST OF I-15, NEAR WEST END OF BROWNES LAKE.

Element occurrence data:
ONLY 4 PLANTS SEEN, 2 ON ROADSIDE AND 2 ON NATURAL SLOPE ABOVE ROAD.

General site description:
GRAVELLY LOAM SOILS, ON ROADSIDE AND SLOPE ABOVE ROAD; PSEUDOTSUGA MENZIESII/AGROPYRON SPICATUM, WITH CERCOCARPUS MONTANUS, SENECIO CANUS, PENSTEMON ARIDUS.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, DILLON RANGER DISTRICT
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:

Information source: SHELLY, J. S. 1987. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 16-19 JUNE.]

Specimens: SHELLY, J. S. (1339). 1987. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.018
Element occurrence type:

Survey site name: KEARNS CREEK
EO rank: C
EO rank comments: SMALLER POPULATION; SOME MINING AND GRAZING NEARBY.

County: BEAVERHEAD

USGS quadrangle: ERMONT

Township:	Range:	Section:	TRS comments:
006S	011W	16	NE4; 15 N2SW4, S2NW4

Precision: S
Survey date: 1987-06-17 Elevation: 6900 -
First observation: 1987 Slope/aspect:
Last observation: 1988 Size (acres): 5

Location:
PIONEER MOUNTAINS, KEARNS CREEK, ADJACENT TO SILVER RULE MINE; ABOUT 0.5 AIR MILE SOUTHWEST OF RED BUTTE; ABOUT 0.75 AIR MILE WEST OF RATTLESNAKE CREEK.

Element occurrence data:
52 PLANTS COUNTED, 4 SUBPOPULATIONS (1987); MOST ABUNDANT ON EAST-FACING SLOPE ALONG CREEK, ON GRAVELLY OPEN SLOPE; SOME GRAZING AND MINING ACTIVITY IN THE AREA; FIFTH SUBPOPULATION, CONTAINING 40 PLANTS, LOCATED IN 1988 BY K. SCOW.

General site description:
GRAVELLY LOAM SOILS; ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS, WITH SENECIO CANUS, BALSAMORHIZA SAGITTATA, HELIANTHELLA QUINQUENERVIS, LUPINUS SERICEUS, PSEUDOTSUGA MENZIESII, PINUS CONTORTA.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, DILLON RANGER DISTRICT
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:

Information source: SHELLY, J. S. 1987. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 16-19 JUNE.]

Specimens: SHELLY, J. S. (1342). 1987. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.019
Element occurrence type:

Survey site name: BADGER PASS NORTH
EO rank: B
EO rank comments: MODERATE-SIZED POPULATION; FAIR TO GOOD CONDITION RANGELAND.

County: BEAVERHEAD

USGS quadrangle: BANNACK

Township:	Range:	Section:	TRS comments:
007S	011W	09	NE4NE4; 10 NW4; 3 SW4

Precision: S
Survey date: 1987-06-18 Elevation: 6980 -
First observation: 1987 Slope/aspect:
Last observation: 1989-07-28 Size (acres): 4

Location:
SOUTHERN PIONEER MOUNTAINS, 0.7-1.2 AIR MILES NNE. OF BADGER PASS; ABOUT 15 AIR MILES WEST OF DILLON.

Element occurrence data:
ABOUT 200 PLANTS COUNTED, POPULATION = EST. 300+ PLANTS, 3 SUBPOPULATIONS OBSERVED; FLOWERING; NUMEROUS PLANTS GROWING THROUGH BRANCHES OF SAGEBRUSH SHRUBS; AREA IS LIGHTLY TO MODERATELY GRAZED; PERMANENT MONITORING TRANSECT ESTABLISHED IN 1989.

General site description:
BROWN LOAM SOILS; ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS, WITH PSEUDOTSUGA MENZIESII, BALSAMORHIZA SAGITTATA, LUPINUS SERICEUS, ANTENNARIA MICROPHYLLA, ASTER STENOMERES.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, DILLON RANGER DISTRICT

Comments:

Information source: SHELLY, J. S. 1987. [FIELD SURVEYS IN BEAVERHEAD COUNTY OF 16-19 JUNE.]

Specimens: SHELLY, J. S. (1343). 1987. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.020
Element occurrence type:

Survey site name: SELWAY CREEK
EO rank: D
EO rank comments: VERY SMALL POPULATION; NATIVE HABITAT, SOME GRAZING IMPACTS.

County: BEAVERHEAD

USGS quadrangle: KITTY CREEK

Township:	Range:	Section:	TRS comments:
008S	015W	27	SW4NE4

Precision: S
Survey date: 1989-06-29
First observation: 1987
Last observation: 1989-06-29

Elevation: 7200 -
Slope/aspect: 20-30% / EAST
Size (acres): 1

Location:
BLOODY DICK CREEK DRAINAGE, SLOPES ABOVE SELWAY CREEK, ABOUT 2 MILES SOUTHEAST OF RESERVOIR LAKE; ABOUT 4 MILES EAST OF MONTANA-IDAHO STATE LINE.

Element occurrence data:
SIX PLANTS OBSERVED, IN 2 CLUMPS (19 JUNE 1987); FLOWERING; PLANTS ASSOCIATED WITH STEEP ROCK OUTCROP AREAS, AND NOT OBSERVED IN DENSER SURROUNDING VEGETATION. 10 PLANTS OBSERVED IN 1989.

General site description:
ROCK OUTCROPS; ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS, WITH ERIOGONUM UMBELLATUM, PHACELIA FRANKLINII, SEDUM LANCEOLATUM, LUPINUS SERICEUS, PSEUDOTSUGA MENZIESII, PICO.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, DILLON RANGER DISTRICT

Comments:
ALSO SURVEYED BY J. S. SHELLY, 16-19 JUNE 1987.

Information source: SCHASSBERGER, L. A. 1989. [MTNHP FIELD SURVEYS OF SOUTHWEST MONTANA, 26-30 JUNE (PENSTEMON LEMHIENSIS).]

Specimens: SHELLY, J. S. (1344). 1987. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.021
Element occurrence type:

Survey site name: WEST OF BIG HOLE BATTLEFIELD
EO rank:
EO rank comments:

County: BEAVERHEAD

USGS quadrangle: UNMAPPABLE

Township: Range: Section: TRS comments:

Precision: U
Survey date: 1947-07-23 Elevation: 5000 -
First observation: 1947 Slope/aspect:
Last observation: 1947-07-23 Size (acres): 0

Location:
WEST OF BIG HOLE BATTLEFIELD (HISTORICAL COLLECTION).

Element occurrence data:
UNKNOWN; MAY POSSIBLY HAVE BEEN FROM JUST OUTSIDE WESTERN BOUNDARY OF BIG HOLE BATTLEFIELD, IN AREA THAT IS NOW DISTURBED BY GRAZING (1986); ELEVATION GIVEN IS LOWER THAN PRESENT IN AREA.

General site description:
SAGEBRUSH AREA.

Land owner/manager:

Comments:
SPECIMEN DETERMINED BY D. KECK; FIRST MONTANA RECORD.

Information source: BOTANIST, MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVENUE, HELENA, MT 59620-1800.

Specimens: ROSE, F. H. (3502). 1947. SPECIMEN #092520. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.022
Element occurrence type:

Survey site name: MEDICINE LODGE CREEK
EO rank:
EO rank comments:

County: BEAVERHEAD

USGS quadrangle: TEPEE MOUNTAIN

Township:	Range:	Section:	TRS comments:
013S	012W	03	SE4NE4, NE4SE4

Precision: S
Survey date: 1987- -
First observation: 1987
Last observation: 1987- -
Elevation: 6970 -
Slope/aspect:
Size (acres): 20

Location:
MEDICINE LODGE CREEK DRAINAGE, 0.15 AIR MILES WNW OF CONFLUENCE OF MEDICINE LODGE AND HILDRETH CREEKS, CA. 19 AIR MILES SOUTH OF GRANT.

Element occurrence data:
UNKNOWN; POPULATION REPORTED TO BE LARGE BY J. CHRISTENSEN.

General site description:
UNKNOWN; SPECIES OFTEN OCCURS IN SAGEBRUSH/BUNCHGRASS HABITATS AT HIGHER ELEVATIONS.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
SITE REPORTED BY J. CHRISTENSEN, BEAVERHEAD NATIONAL FOREST; IDENTIFICATION UNCERTAIN - DURING SURVEYS IN 1989, ONLY P. RADICOSUS WAS FOUND IN THE AREA (SCHASSBERGER).

Information source: CHRISTENSEN, JIM. BEAVERHEAD NATIONAL FOREST, DILLON RANGER DISTRICT, 420 BARRETT STREET, DILLON, MT 59725-3572. PHONE: 406/683-3959.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.023
Element occurrence type:

Survey site name: MINER CREEK
EO rank: C
EO rank comments: HEAVILY GRAZED, INVASIVE WEEDS.

County: BEAVERHEAD

USGS quadrangle: MINER LAKE

Township:	Range:	Section:	TRS comments:
006S	016W	02	SE4

Precision: S
Survey date: 1989-06-30 Elevation: 7080 -
First observation: 1989 Slope/aspect: 3-15% / ESE
Last observation: 1989-06-30 Size (acres): 10

Location:
BIGHOLE VALLEY, CA. 6 MILES SOUTHWEST OF JACKSON, NORTH OF F.S. ROAD 182.

Element occurrence data:
UNCOMMON, 17 PLANTS IN 1989.

General site description:
SAGEBRUSH GRASSLAND WITH SPERGULA ARVENSIS, ERIOGONUM UMBELLATUM, CAREX FILIFOLIA, LUPINUS SERICEUS.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, WISDOM RANGER DISTRICT

Comments:

Information source: SCHASSBERGER, L. A. 1989. [MTNHP FIELD SURVEYS OF SOUTHWEST MONTANA, 26-30 JUNE (PENSTEMON LEMHIENSIS).]

Specimens: SCHASSBERGER, L. S. (311). 1989. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

cientific Name: PENSTEMON LEMHIENSIS
ommon Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
tate rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.024
Element occurrence type:

urvey site name: FROG CREEK
EO rank: C
EO rank comments: SMALL POPULATION.

County: BEAVERHEAD

SGS quadrangle: COYOTE CREEK

Township:	Range:	Section:	TRS comments:
009S	014W	21	SW4

Precision: S
Survey date: 1989-06-29 Elevation: 7200 - 7280
First observation: 1989 Slope/aspect: 8-15% / EAST
Last observation: 1990-07-10 Size (acres): 1

Location:
HORSE PRAIRIE, CA. 1 MILE NORTHWEST OF HORSE PRAIRIE GUARD STATION, ALONG FROG CREEK

Element occurrence data:
1990: 17 GENETS; PLANTS MOSTLY BLOOMING OR BROWSED; FEW SEEDLINGS WERE OBSERVED. 1989: 26 PLANTS.

General site description:
ON ROADSIDE EMBANKMENT WITH BALSAMORHIZA SAGITTATA, ARTEMISIA TRIDENTATA, AGROPYRON SPICATUM, SEDUM SP., POTENTILL GRACILIS, ARTEMISIA TRIPARTITA, ACHILLEA MILLEFOLIUM, PENSTEMON ARIDIS, CASTILLEJA PALLESCENS, FESTUCA IDAHOENSIS AND FRAGARIA VESCA.

and owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
16 OF 17 PLANTS GROWING IN ROADCUT. POPULATION COULD BE ELIMINATED THROUGH ROAD MAINTENANCE, SPRAY AND WILDFLOWER PICKERS. 1994-06-28: JIM VANDERHORST SEARCHED FOR POPULATION BUT NO PLANTS WERE FOUND.

Information source: SCHASSBERGER, L. A. 1989. [MTNHP FIELD SURVEYS OF SOUTHWEST MONTANA, 26-30 JUNE (PENSTEMON LEMHIENSIS).]

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.025
Element occurrence type:

Survey site name: BRISTON LANE
EO rank: A
EO rank comments: LARGE POPULATION.

County: BEAVERHEAD

USGS quadrangle: HIGHLAND RANCH

Township:	Range:	Section:	TRS comments:
003S	016W	35	NE4,S2

Precision: S
Survey date: 1989-06-30 Elevation: 6260 -
First observation: 1989 Slope/aspect: 8-15% / EAST
Last observation: 1989-06-30 Size (acres): 10

Location:
CA. 5.5 MILES SSW OF WISDOM. CA. 3.5 MILES ALONG BRISTON LANE, JUST WEST OF THE ROAD.

Element occurrence data:
110 PLANTS IN 1989.

General site description:
SITE WAS BURNED (SAGEBRUSH GONE) AND IS GRAZED. ASSOCIATED SPECIES INCLUDE AGROPYRON SPICATUM, STIPA COMATA, ERIOGONUM UMBELLATUM VAR SUBALPINUM, SEDUM LANCEOLATUM, GERANIUM VISCOSISSIMUM AND SPERGULA ARVENSIS.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
BURNING AND GRAZING APPEARS TO HAVE IMPROVED THE HABITAT FOR P. LEMHIENSIS.

Information source: SCHASSBERGER, L. A. 1989. [MTNHP FIELD SURVEYS OF SOUTHWEST MONTANA, 26-30 JUNE (PENSTEMON LEMHIENSIS).]

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.026
Element occurrence type:

Survey site name: SWAMP CREEK
EO rank: D
EO rank comments: AROUND CATTLE SALT LICK.

County: BEAVERHEAD

USGS quadrangle: HIGHLAND RANCH

Township:	Range:	Section:	TRS comments:
003S	016W	04	E2

Precision: S
Survey date: 1989-06-30 Elevation: 6260 -
First observation: 1989-06-30 Slope/aspect: 0-3% / SE
Last observation: 1991-07-15 Size (acres): 3

Location:
BIGHOLE VALLEY, CA. 5.2 MILES WEST OF WISDOM, ALONG SWAMP CREEK ROAD, SOUTH OF ROAD.

Element occurrence data:
1991: 117 PLANTS, 95% IN BLOOM. 1989: 23 PLANTS.

General site description:
IN OPEN ROCKY GROUND, WITH ARTEMISIA TRIDENTATA, SEDUM LANCEOLATUM, ASTRAGALUS MISER, TARAXACUM OFFICINALE, STIPA COMATA, POA SECUNDA, CHRYSOTHANMUS VISCIDIFLORUS, AGROPYRON REPENS, AND LUPINUS ARGENTEUS.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
CATTLE DISTURBANCE AROUND SALT LICK APPEARS TO HAVE ENHANCED HABITAT FOR THIS SPECIES. RELOCATED IN 1991 BY QUINN CARVER. NO CATTLE DISTURBANCE MENTIONED IN 1991 SURVEY.

Information source: SENSITIVE PLANT COORDINATOR, BEAVERHEAD NATIONAL FOREST, 610 NORTH MONTANA STREET, DILLON, MT 59725.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.027
Element occurrence type:

Survey site name: HORSE PRAIRIE GUARD STATION
EO rank: D
EO rank comments: VERY SMALL POPULATION.

County: BEAVERHEAD

USGS quadrangle: COYOTE CREEK

Township:	Range:	Section:	TRS comments:
009S	014W	27	NW4SW4

Precision: S
Survey date: 1989-06-29 Elevation: 6690 -
First observation: 1989 Slope/aspect: 3-8% / SOUTH
Last observation: 1994-06-28 Size (acres): 1

Location:
HORSE PRAIRIE, CA. 0.5 MILES SE OF HORSE PRAIRIE GUARD STATION.

Element occurrence data:
ONLY 3 PLANTS, ON A ROADCUT.

General site description:
ON ROADSIDE, WITH ARTEMISIA TRIDENTATA, BALSAMORHIZA SAGITTATA, CASTILLEJA PALLESCENS, FESTUCA IDAHOENSIS, AND FRAGARIA VESCA. 1994: 6 PLANTS COUNTED ON ROADCUT, 7 PLANTS COUNTED IN SAGEBRUSH HABITAT ABOVE ROAD.

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
SEE BLM MONITORING TRANSECT DATA FOR MORE DETAILED DEMOGRAPHY OF ROADCUT POPULATION.

Information source: SCHASSBERGER, L. A. 1989. [MTNHP FIELD SURVEYS OF SOUTHWEST MONTANA, 26-30 JUNE (PENSTEMON LEMHIENSIS).]

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.028
Element occurrence type:

Survey site name: BLOODY DICK CREEK I
EO rank: C
EO rank comments: ROADCUT POPULATION.

County: BEAVERHEAD

USGS quadrangle: COYOTE CREEK

Township:	Range:	Section:	TRS comments:
009S	014W	31	W2, SE4
010S	014W	05	NE4

Precision: S
Survey date: 1989-06-29 Elevation: 6600 -
First observation: 1989 Slope/aspect: 0-3% / SW
Last observation: 1989-06-29 Size (acres): 2

Location:
HORSE PRAIRIE, ALONG BLOODY DICK CREEK, CA. 7.1 MILES WEST OF RED BUTTE.

Element occurrence data:
34 PLANTS, FOUR SMALL SUBPOPULATIONS (1989).

General site description:
PLANTS ALONG ROADSIDE, WITH ARTEMISIA TRIPARTITA, FESTUCA IDAHOENSIS, AGROPYRON SPICATUM AND CASTILLEJA PALLESCENS.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
AREAS WHICH HAD FEW OR NO PLANTS IN 1988, HAD AS MANY AS 10-15 PLANTS IN 1989.

Information source: SCHASSBERGER, L. A. 1989. [MTNHP FIELD SURVEYS OF SOUTHWEST MONTANA, 26-30 JUNE (PENSTEMON LEMHIENSIS).]

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.029
Element occurrence type:

Survey site name: BLOODY DICK CREEK 2
EO rank: C
EO rank comments: SMALL POPULATION, CLOSE TO ROADWAY.

County: BEAVERHEAD

USGS quadrangle: EVERSON CREEK

Township:	Range:	Section:	TRS comments:
010S	014W	05	NW4;4N2

Precision: S
Survey date: 1989-06-29 Elevation: 6300 - 6400
First observation: 1989-06-29 Slope/aspect: 0-8% / SW
Last observation: 1993-06-28 Size (acres): 2

Location:
HORSE PRAIRIE, CA. 5.1 MILES WEST OF RED BUTTE, ALONG BLOODY DICK CREEK ROAD.

Element occurrence data:
1993: 3 SUBPOPULATIONS RELOCATED, ONLY 7 PLANTS SEEN IN 2; 19 PLANTS IN THIRD (EASTERNMOST) SUBPOPULATION; FLOWERING WITH IMMATURE FRUIT. 1989: 22 PLANTS, FOUR SMALL SUBPOPULATIONS.

General site description:
ASSOCIATED SPECIES OBSERVED IN 1993: ERIOGONUM OVALIFOLIUM, CASTILLEJA PALLESCENS, E. UMBELLATUM, LUPINUS LEUCOPHYLLUS, PENSTEMON ARIDUS, HAPLOPAPPUS ACAULIS. 1989: ARTEMISIA TRIDENTATA, CASTILLEJA PALLESCENS, ORTHOCARPUS LUTEUS AND AGROPYRON SPICATUM.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
SITE REVISITED IN 1993 BY JIM VANDERHORST. OTHER KNOWN POPULATIONS ALONG THIS ROAD WERE SEARCHED FOR; SOME WERE FOUND BUT HAD FEWER PLANTS THAN IN 1989, OTHERS COULD NOT BE RELOCATED, SOME POPULATIONS INCREASED.

Information source: VANDERHORST, J. 1993. [MTNHP FIELD SURVEYS CONDUCTED AT LEMHI PASS FOR THE BUREAU OF LAND MANAGEMENT.]

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.030
Element occurrence type:

Survey site name: SPRING GULCH
EO rank: D
EO rank comments: VERY SMALL POPULATION, WEEDY HABITAT.

County: RAVALLI

USGS quadrangle: ROBBINS GULCH

Township:	Range:	Section:	TRS comments:
03N	020W	24	SE4SE4

Precision: S
Survey date: 1989-06-27 Elevation: 5200 -
First observation: 1989 Slope/aspect: 35%+ / SE
Last observation: 1989-06-27 Size (acres): 1

Location:
WESTERN FOOTHILLS OF SAPPHIRE MOUNTAINS, RYE CREEK DRAINAGE, SPRING GULCH, 1.15 AIR MILES NORTHEAST OF CONFLUENCE OF RYE CREEK AND NORTH FORK RYE CREEK, CA. 8 AIR MILES ESE OF DARBY.

Element occurrence data:
FOUR PLANTS OBSERVED; ONE FLOWERING, 3 STERILE ROSETTES. HABITAT SERIOUSLY AFFFECTED BY KNAPWEED INVASION.

General site description:
GRANITIC GRAVELLY LOAM SOILS; PURSHIA TRIDENTATA/AGROPYRON SPICATUM HABITAT, WITH CENTAUREA MACULOSA, BALSAMORHIZA SAGITTATA, BROMUS TECTORUM, KOELERIA CRISTATA, POA SECUNDA, ACHILLEA MILLEFOLIUM, DESCURAINIA RICHARDSONII, PHACELIA LINEARIS, LOMATIUM DISSECTUM, TRAGOPOGON DUBIUS.

Land owner/manager:
BITTERROOT NATIONAL FOREST, DARBY RANGER DISTRICT

Comments:
SIGHT RECORD, NO VOUCHER SPECIMEN COLLECTED; SITE SURVEYED WITH A. KRATZ, BITTERROOT NATIONAL FOREST.

Information source: SHELLY, J. S. 1989. [FIELD SURVEYS IN RAVALLI COUNTY, 26-29 JUNE (PENSTEMON LEMHIENSIS).]

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.031
Element occurrence type:

Survey site name: ROBBINS GULCH
EO rank: D
EO rank comments: SMALL POPULATION, IN FAIRLY WEEDY AREA.

County: RAVALLI

USGS quadrangle: ROBBINS GULCH

Township:	Range:	Section:	TRS comments:
002N	020W	16	N2NW4; 09 SE4SW4

Precision: S
Survey date: 1989-06-29 Elevation: 4500 -
First observation: 1989 Slope/aspect: 8-35% / SE
Last observation: 1989-06-29 Size (acres): 5

Location:
WESTERN FOOTHILLS OF SAPPHIRE MOUNTAINS, EAST FORK BITTERROOT RIVER DRAINAGE, ROBBINS GULCH, NORTH OF BITTERROOT N.F. RD. #446, CA. 1 MILE NORTHEAST OF U.S. HWY. 93.

Element occurrence data:
14 PLANTS OBSERVED, IN 5 SMALL COLONIES; 8 FLOWERING, 6 ROSETTES, ONE PLANT ON ROADSIDE.

General site description:
GRANITIC, SANDY TO GRAVELLY LOAM SOILS; PINUS PONDEROSA/PURSHIA TRIDENTATA HABITAT, WITH KOELERIA CRISTATA, CENTAUREA MACULOSA, AGROPYRON SPICATUM, BALSAMORHIZA SAGITTATA, PHACELIA LINEARIS, POA SECUNDA, ALYSSUM ALYSSOIDES, LITHOSPERMUM RUDERALE, PENSTEMON ALBERTINUS.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)
BITTERROOT NATIONAL FOREST, DARBY RANGER DISTRICT

Comments:

Information source: SHELLY, J. S. 1989. [FIELD SURVEYS IN RAVALLI COUNTY, 26-29 JUNE (PENSTEMON LEMHIENSIS).]

Specimens: SHELLY, J. S. (1569) AND A. KRATZ. 1989.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.032
Element occurrence type:

Survey site name: POLARIS
EO rank:
EO rank comments:

County: BEAVERHEAD

USGS quadrangle: ELKHORN HOT SPRINGS

Township:	Range:	Section:	TRS comments:
005S	012W	30	NE4NE4; 19 SE4SE4

Precision: S
Survey date:
First observation: 1989
Last observation: 1989-06-28
Elevation: 6400 -
Slope/aspect: 35% / EAST
Size (acres): 0

Location:
GRASSHOPPER CREEK RD., CA. 0.5 MILES NORTH OF POLARIS, CA. 0.1 MILE NORTH OF GRASSHOPPER CREEK CROSSING, IMMEDIATELY NORTH OF GRAVEL PIT.

Element occurrence data:
POPULATION OF 50+ PLANTS IN 1989.

General site description:
GROWING ON EAST-FACING ROADCUT IN ALLUVIUM WITH 50 PERCENT COARSE FRAGMENTS, WITH ARTEMISIA TRIDENTATA, CHRYSOTHAMNUS NAUSEOSUS, AGROPYRON SPICATUM, AND BROMUS TECTORUM.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
PLANTENBERG - "THE SITE WILL EVENTUALLY BE LOST TO KNAPWEED CONTROL - ACTIVE ROADCUT."

Information source: PLANTENBERG, PATRICK L. DEPARTMENT OF STATE LANDS, HARK ROCK BUREAU, RECLAMATION DIVISION, 1625 11TH AVENUE, HELENA, MT 59620-1601. 406/444-2074

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

cientific Name: PENSTEMON LEMHIENSIS
ommon Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
tate rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.033
Element occurrence type:

urvey site name: SHALE CREEK
EO rank:
EO rank comments:

County: BEAVERHEAD

USGS quadrangle: ELKHORN HOT SPRINGS

Township:	Range:	Section:	TRS comments:
005S	012W	08	SW4SW4

Precision: S
Survey date:
First observation: 1989
Last observation: 1989-06-28
Elevation: 6560 -
Slope/aspect: 35% / EAST
Size (acres): 0

Location:
GRASSHOPPER CREEK RD., CA. 2.5 MILES NORTH OF POLARIS, ON CREST OF HILL.

Element occurrence data:
POPULATION OF 2 PLANTS IN 1989.

General site description:
ON EAST FACING ROADCUT. IN DEEP LOAMY SOIL, WITH LESS THAN 5% COARSE FRAGMENTS, WITH ARTEMISIA TRIDENTATA, GUTIERREZIA SAROTHRAE, AGROPYRON SPICATUM, AND BROMUS TECTORUM.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
PLANTENBERG - "SITE WILL EVENTUALLY BE ELIMINATED BY KNAPWEED CONTROL - ACTIVE ROADCUT."

Information source: PLANTENBERG, PATRICK L. DEPARTMENT OF STATE LANDS, HARK ROCK BUREAU, RECLAMATION DIVISION, 1625 11TH AVENUE, HELENA, MT 59620-1601. 406/444-2074

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.034
Element occurrence type:

Survey site name: BLOODY DICK CREEK III
EO rank: B
EO rank comments: CLOSE TO ROADWAYS, BUT LARGE POPULATIONS.

County: BEAVERHEAD

USGS quadrangle: KITTY CREEK

Township:	Range:	Section:	TRS comments:
009S	015W	25	SW4

Precision: S
Survey date: 1989-06-29 Elevation: 6600 -
First observation: 1989 Slope/aspect: 0-30% / SW
Last observation: 1989-06-29 Size (acres): 15

Location:
BLOODY DICK CREEK RD., CA. 0.75 MILE SOUTH OF EAST PETERSON CK.

Element occurrence data:
74 PLANTS IN 3 SUBPOPULATIONS IN 1989.

General site description:
SOUTHWEST SLOPE, WITH ARTEMISIA TRIPARTITA, FESTUCA IDAHOENSIS, AGROPYRON SPICATUM, AND CASTILLEJA PALLESCENS.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:

Information source: SCHASSBERGER, L. A. 1989. [MTNHP FIELD SURVEYS OF SOUTHWEST MONTANA, 26-30 JUNE (PENSTEMON LEMHIENSIS).]

Specimens: SCHASSBERGER, L. A. (303). 1989.

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.035
Element occurrence type:

Survey site name: DUTCH CREEK
EO rank: C
EO rank comments: SMALL ROADSIDE POPULATION.

County: BEAVERHEAD

USGS quadrangle: KITTY CREEK

Township:	Range:	Section:	TRS comments:
009S	015W	14	SW4; 23 NE4

Precision: S
Survey date: 1989-06-29 Elevation: 6760 -
First observation: 1989-06-29 Slope/aspect: 0-35% / SW
Last observation: 1993-06-28 Size (acres): 12

Location:
BLOODY DICK CREEK RD., CA. 0.25 MILE NORTH AND 0.3 MILE SOUTH OF DUTCH CREEK.

Element occurrence data:
NO PLANTS FOUND IN 1993. CA. 30 PLANTS IN 2 SUBPOPULATIONS IN 1989.

General site description:
ROADSIDE POPULATIONS IN ROCKY LOAM SOILS, WITH ARTEMISIA TRIDENTATA AND FESTUCA IDAHOENSIS.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, DILLON RANGER DISTRICT
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
NO PLANTS FOUND IN LOCATION BY VANDERHORST, 1993.

Information source: VANDERHORST, J. 1994. SURVEY FOR SENSITIVE PLANT SPECIES ON BLM LANDS IN THE VICINITY OF LEMHI PASS, BEAVERHEAD COUNTY. UNPUBLISHED REPORT TO THE BUTTE DISTRICT, BUREAU OF LAND MANAGEMENT. MONTANA NATURAL HERITAGE PROGRAM, HELENA. 5 PP. PLUS APPENDICES.

Specimens: SCHASSBERGER, L. A. (302). 1989.

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.036
Element occurrence type:

Survey site name: BLANCHARD POND
EO rank: D
EO rank comments: POPULATION IN ROADCUT.

County: BEAVERHEAD

USGS quadrangle: JACKSON

Township:	Range:	Section:	TRS comments:
006S	015W	33	NE4SE4

Precision: S
Survey date: 1989-06-30 Elevation: 6880 -
First observation: 1989 Slope/aspect: 3-8% / EAST
Last observation: 1992-07-20 Size (acres): 1

Location:
BIG HOLE RIVER DRAINAGE, SKINNER MEADOWS RD., CA. 6.5 MILES SSW OF JACKSON.

Element occurrence data:
2 SUBPOPULATIONS: SOUTHERN: (1992) 12 BASAL ROSETTES WITH 1 FLOWERING STEM. NORTHERN: (1989) 61 PLANTS COUNTED.

General site description:
ON (ALLUVIAL) ROAD EMBANKMENT, WITH ARTEMISIA TRIDENTATA, ERIOGONUM UMBELLATUM VARIETIES SUBALPINUM AND INTECTUM, RIBES HENDERSONII, FRAGARIA VIRGINIANA, POA PRATENSIS, ACHILLEA MILLEFOILUM, AGROPYRON REPENS, POTENTILLA FRUTICOSA, FESTUCA IDAHOENSIS, ERIOPHYLLUM LANATUM.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
1992: SOUTHERN POPULATION SURVEYED BY Q. CARVER. SPECIMEN TAKEN, COLLECTION #QC 006, BUT REPOSITORY UNKNOWN. 1989: POPULATION MAY BE DESTROYED THROUGH ROAD MAINTENANCE ACTIVITIES.

Information source: SCHASSBERGER, L. A. 1989. [MTNHP FIELD SURVEYS OF SOUTHWEST MONTANA, 26-30 JUNE (PENSTEMON LEMHIENSIS).]

Specimens: SCHASSBERGER, L. A. (309). 1989.

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.037
Element occurrence type:

Survey site name: WOODS CREEK
EO rank: D
EO rank comments: SMALL POPULATION; HABITAT BADLY INFESTED WITH KNAPWEED.

County: RAVALLI

USGS quadrangle: ALTA

Township:	Range:	Section:	TRS comments:
003S	022W	20	NE4; 21 NW4

Precision: M
Survey date: 1990-07-30 Elevation: 5360 -
First observation: 1989 Slope/aspect: 20-30% / SOUTH; 60% / WEST
Last observation: 1992-06-05 Size (acres): 2

Location:
BITTERROOT MOUNTAINS, WEST FORK BITTERROOT DRAINAGE, WOODS CREEK; NORTH SIDE OF BITTERROOT NF ROAD #5669, 0.6 MILE WEST OF JUNCTION WITH ROAD #91 (WEST FORK ROAD).

Element occurrence data:
1989: 7 PLANTS COUNTED. 1990: 24 PLANTS COUNTED, 10 FRUITING AND 5 BASAL ROSETTES. SEVERAL PLANTS HAVE COLONIZED THE OPEN ROADBANK. IN 1992, 57 PLANTS OBSERVED (3 FLOWERING).

General site description:
GRAVELLY LOAM SOILS, DRY EXPOSURE, AGROPYRON SPICATUM GRASSLAND, PINUS PONDEROSA/PSEUDOTSUGA MENZIES11 ECOTONE. ASSOCIATED SPECIES: CENTAUREA MACULOSA, BALSAMORHIZA SAGITTATA, ACHILLEA MILLEFOLIUM, ERIOGONUM UMBELLATUM, FESTUCA IDAHOENSIS, GILIA AGGREGATA, BERBERIS REPENS, FRASERA ALBICAULIS, PHACELIA HASTATA, APOCYNUM ANDROSAEMIFOLIUM, PHYSARIA GEYERI.

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

Comments:
POPULATION OBSERVED BY J.S. SHELLY, W. ALBERT, K. LACKSCHEWITZ AND K. MCBRIDE. POPULATION FIRST LOCATED BY W. ALBERT IN 1989. SEE GMF FOR ADDITIONAL DETAIL ON 1992 SURVEY.

Information source: SHELLY, J. STEPHEN. USFS REGION 1, WLF, P.O. BOX 7669, MISSOULA, MT 59807.

Specimens: ALBERT, W. E. (798). 1989. MRC.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.038
Element occurrence type:

Survey site name: KILNS
EO rank: A
EO rank comments: GOOD POPULATION IN CURRENTLY UNDISTURBED HABITAT.

County: BEAVERHEAD

USGS quadrangle: CATTLE GULCH

Township:	Range:	Section:	TRS comments:
002S	010W	08	NE4NW4

Precision: S
Survey date: 1990-06-29 Elevation: 7200 -
First observation: 1990 Slope/aspect: 35-45% / SOUTH
Last observation: 1990-06-29 Size (acres): 4

Location:
ABOVE CANYON CREEK KILNS CA. 9 MILES WEST OF MELROSE.

Element occurrence data:
CA. 65 PLANTS (29 JUNE 1990) IN FULL FLOWER.

General site description:
IN SLIGHTLY TALLER SAGEBRUSH STANDS WHERE SOILS ARE SOMEWHAT UNSTABLE AND TOTAL GRASS COVER IS LOW. ASSOCIATED SPECIES INCLUDE ARTEMISIA TRIDENTATA, CHRYSOTHAMNUS NAUSEOSUS, PHLOX LONGIFOLIA, ACHILLEA MILLEFOLIUM AND, SPARSELY, ARABIS FECUNDA.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, WISE RIVER RANGER DISTRICT

Comments:
THIS SITE IS DIRECTLY BELOW THE LOG RAMP AT THE TOP OF THE HILL ABOVE THE KILNS. IT IS LIKELY THAT AT ONE TIME VEGETATION WAS SCOURED FROM THE HILLSIDE BY ROLLING LOGS.

Information source: ROE, LISA SCHASSBERGER. [BOTANIST.] 531 SPENCER, HELENA, MONTANA 59601.

Specimens: ROE, L. S. (390). 1990.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.040
Element occurrence type:

Survey site name: ERMONT GULCH
EO rank: B
EO rank comments: POSSIBLE THREATS FROM GRAZING OR COMPETITION.

County: BEAVERHEAD

USGS quadrangle: ERMONT

Township:	Range:	Section:	TRS comments:
006S	011W	27	SE4SW4

Precision: S
Survey date: 1990-06-28 Elevation: 6800 -
First observation: 1990 Slope/aspect: 8-15% / SOUTHEAST
Last observation: 1990-06-28 Size (acres): 0

Location:
CA. 3.5 MILES WEST OF ARGENTA, JUST WEST OF FS ROAD #7467.

Element occurrence data:
2 BLOOMING PLANTS (28 JUNE 1990).

General site description:
ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS COMMUNITY, WITH PENSTEMON ARIDUS, P. WHIPPLEANUS, P. RADICOSUS, KOELERIA CRISTATA, TARAXACUM OFFICINALE, PSEUDOTSUGA MENZIESII, SENECIO SPP.

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
NONFLOWERING PLANTS NOT SEARCHED FOR.

Information source: HEINZE, DONALD. BUREAU OF LAND MANAGEMENT, 222 NORTH 32ND STREET, P.O. BOX 36800, BILLINGS, MT 59107-6800. 406/255-2913.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.041
Element occurrence type:

Survey site name: BLOODY DICK CREEK
EO rank: C
EO rank comments: SOME BROWSING; ROAD MAINTENANCE, WEED SPRAY, WILDFLOWER PICKING ALL POTENTIAL THREATS.

County: BEAVERHEAD

USGS quadrangle: KITTY CREEK

Township:	Range:	Section:	TRS comments:
009S	015W	23	SE4SE4

Precision: S
Survey date: 1990-08-08 Elevation: 6600 -
First observation: 1990 Slope/aspect: 3-8% / SOUTHWEST
Last observation: 1993-06-28 Size (acres): 0

Location:
BEAVERHEAD MOUNTAINS, BLOODY DICK CREEK ROAD, CA. 0.75 MILE SOUTH OF DUTCH CREEK, AND CA. 0.5 MILE NORTH OF EAST PETERSON CREEK.

Element occurrence data:
4 PLANTS FOUND IN 1993. 1990: 8 GENETS.

General site description:
ROADCUT; ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS COMMUNITY, WITH AGROPYRON SPICATUM, BALSAMORHIZA SAGITTATA, KOELERIA CRISTATA, PSEUDOTSUGA MENZIESII, SEDUM SP., MELILOTUS OFFICIANALIS.

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
IMMATURE PLANTS NOT SEARCHED FOR.

Information source: VANDERHORST, J. 1993. [MTNHP FIELD SURVEYS CONDUCTED AT LEMHI PASS FOR THE BUREAU OF LAND MANAGEMENT.]

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.042
Element occurrence type:

Survey site name: BULL CREEK (HAIRPIN RANCH)
EO rank: C
EO rank comments: HIGHWAY MAINTENANCE, WEED SPRAY, WILDFLOWER-PICKING ALL POTENTIAL THREATS.

County: BEAVERHEAD

USGS quadrangle: BUTCH HILL

Township:	Range:	Section:	TRS comments:
006S	014W	16	SE4NE4

Precision: S
Survey date: 1990-08-12 Elevation: 6700 -
First observation: 1990 Slope/aspect: 3-8% / SOUTHWEST
Last observation: 1990-08-12 Size (acres): 0

Location:
BULL CREEK, ALONG HIGHWAY 278, CA. 5 MILES WEST OF BIG HOLE PASS.

Element occurrence data:
12 PLANTS IN FLOWER (12 AUGUST 1990).

General site description:
DISTURBED AREA (ROAD CUT), WITH ARTEMISIA TRIDENTATA, BROMUS TECTORUM, AGROPYRON CANINUM, PHLEUM ALPINUM, LUPINUS SPP., ACHILLEA MILLEFOLIUM, STIPA VIRIDULA, ARTEMISIA FRIGIDA, SEDUM SPP., FESTUCA IDAHOENSIS, ERIGERON SPP., AND MELILOTUS OFFICINALIS.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
ONLY PLANTS IN FLOWER WERE NOTED.

Information source: HEINZE, DONALD. BUREAU OF LAND MANAGEMENT, 222 NORTH 32ND STREET, P.O. BOX 36800, BILLINGS, MT 59107-6800. 406/255-2913.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.043
Element occurrence type:

Survey site name: BEAVER CREEK
EO rank: C
EO rank comments: HABITAT IN GOOD CONDITION, BUT POPULATION FAIRLY SMALL.

County: RAVALLI

USGS quadrangle: ALTA

Township:	Range:	Section:	TRS comments:
004S	022W	06	NW4

Precision: S
Survey date: 1990-07-30 Elevation: 6200 -
First observation: 1990 Slope/aspect: 30%+ / SOUTHEAST
Last observation: 1992-06-05 Size (acres): 3

Location:
BITTERROOT MOUNTAINS, WEST FORK BITTERROOT RIVER DRAINAGE, BEAVER CREEK. ALONG BITTERROOT NF ROAD #91, 2.6 MILES WEST OF JUNCTION WITH SHEEP CREEK ROAD, AND CA. 2 AIR MILES NORTHEAST OF HORSE CREEK PASS.

Element occurrence data:
40 PLANTS COUNTED; FRUITING ON DATE OF SURVEY. POPULATION IS BISECTED BY THE ROAD, BUT THE HABITAT ABOVE AND BELOW THE ROAD IS IN VERY GOOD CONDITION. NO SIGNS OF GRAZING; SOME PLANTS HAVE COLONIZED THE ROADBANK. IN 1992, 63 PLANTS OBSERVED (10 FLOWERING).

General site description:
AGROPYRON SPICATUM/FESTUCA IDAHOENSIS GRASSLAND, PSEUDOTSUGA MENZIESII FOREST ZONE; STEEP, SOUTHEAST-FACING SLOPE, IN GRAVELLY LOAM SOILS, WITH BALSAMORHIZA SAGITTATA, ERIOGONUM UMBELLATUM, CENTAUREA MACULOSA, HIERACIUM CYNOGLOSSOIDES, LITHOSPERMUM RUDERALE.

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

Comments:
SIGHT RECORD, NO VOUCHER SPECIMEN COLLECTED. SITE SURVEYED BY J. S. SHELLY, K. LACKSCHEWITZ, W. ALBERT, AND K. MCBRIDE.

Information source: SHELLY, J. STEPHEN. USFS REGION 1, WLF, P.O. BOX 7669, MISSOULA, MT 59807.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.044
Element occurrence type:

Survey site name: TRAPPER CREEK
EO rank: C
EO rank comments: DEGRADED BY LIVESTOCK GRAZING; CAR TRAILS THROUGH AREA.

County: BEAVERHEAD

USGS quadrangle: CATTLE GULCH

Township:	Range:	Section:	TRS comments:
002S	010W	21	SW4SW4NE4

Precision: S
Survey date: 1990-06-28 Elevation: 6060 -
First observation: 1990 Slope/aspect: 3-8% / SOUTH
Last observation: 1990-06-28 Size (acres):

Location:
TRAPPER CREEK, CA. 6.25 AIR MILES WNW OF MELROSE. FROM JUNCTION OF CANYON CREEK ROAD AND TRAPPER CREEK ROAD, TAKE THE LATTER 3.2 MILES TO CATTLE GUARD. TAKE OLD ROAD DOWN TOWARDS CREEK CA. 30 METERS TO SITE.

Element occurrence data:
21 FLOWERING PLANTS; SMALL, REMOTE POPULATION; MAY BE EPHEMERAL.

General site description:
SAGEBRUSH GRASSLAND AT THE EDGE OF ASPENS ALONG CREEK, WITH POA PRATENSIS, ARTEMISIA TRIDENTATA, LUPINUS SERICEUS, PENSTEMON ARIDUS.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, WISE RIVER RANGER DISTRICT

Comments:
NONE.

Information source: LESICA, PETER. DIVISION OF BIOLOGICAL SCIENCES, UNIVERSITY OF MONTANA, MISSOULA, MT 59812. PHONE 406/728-8740.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.045
Element occurrence type:

Survey site name: UPPER WEST FORK BITTERROOT RIVER
EO rank: B
EO rank comments: MODERATE-SIZED POPULATION, HABITAT IN GOOD TO EXCELLENT CONDITION.

County: RAVALLI

USGS quadrangle: ALTA

Township:	Range:	Section:	TRS comments:
004S	022W	9	

Precision: S
Survey date:
First observation: 1992-06-24
Last observation: 1992-06-24
Elevation: 6180 - 6840
Slope/aspect:
Size (acres): 5

Location:
UPPER WEST FORK BITTERROOT RIVER DRAINAGE, CA. 1 MILE SOUTH OF CONFLUENCE OF SHEEP CREEK AND WEST FORK BITTERROOT RIVER; ON SLOPES NORTHEAST OF UNNAMED TRIBUTARY OF WEST FORK BITTERROOT RIVER, CA. 0.25 MILE SOUTHEAST OF CONFLUENCE.

Element occurrence data:
48 PLANTS IN MAIN POPULATION; ONE ISOLATED ROSETTE ALSO SEEN ON SEPARATE SLOPE TO THE NORTHWEST. 20 PLANTS FLOWERING AND 28 VEGETATIVE ROSETTES IN MAIN POPULATION. ONE SUBPOPULATION (OF ANY SIZE.) FAIR REPRODUCTIVE SUCCESS, PLANTS SPARSELY SCATTERED.

General site description:
OPEN EXPOSURE ON STRAIGHT MIDSLOPE. DRY AREA, LOAM/GRAVELLY LOAM SOIL; GRANITIC PARENT MATERIAL. ASSOCIATED PLANT COMMUNITY: IN SHRUB/GRASSLAND ON STEEP SLOPE, ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM. ADDITIONAL ASSOCIATED PLANT SPECIES: ERIOGONUM UMBELLATUM, ACHILLEA MILLEFOLIUM, BERBERIS REPENS, SYMPHORICARPOS ALBUS, BALSAMORHIZA SAGITTATA, KOELERIA CRISTATA, CAREX GEYERI, ARABIS HOLBOELLI, PSEUDOTSUGA MENZIESII (SPARSE), PENSTEMON ALBERTINUS, LUPIS SERICEUS, FESTUCA IDAHOENSIS, PINUS PONDEROSA (SPARSE), EPILOBIUM MINUTUM.

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

Comments:
VESPID WASPS MAY BE FAIRLY SPECIALIZED POLLINATORS. OLD MINING TRAILS ARE PRESENT IN BOTTOM OF DRAINAGE AND ON THE SLOPE TO THE NORTHWEST.

Information source: SHELLY, J. STEPHEN. USFS REGION 1, WLF, P.O. BOX 7669, MISSOULA, MT 59807.

Specimens: SHELLY, J. S. (1656). 1992.

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.046
Element occurrence type:

Survey site name: MOUNT HUMBUG
EO rank:
EO rank comments:

County: SILVER BOW

USGS quadrangle: MOUNT HUMBUG

Township:	Range:	Section:	TRS comments:
001S	007W	06	NE4
001N	007W	32	SW4SW4

Precision: S
Survey date:
First observation: 1992-06-28
Last observation: 1993-07-27
Elevation: 7640 - 7880
Slope/aspect: 20-30% / NE, S, AND W
Size (acres): 35

Location:
HIGHLAND MOUNTAINS SOUTH OF BUTTE. FROM CAMP CREEK ROAD (FS RD 8520) TAKE ROAD TO FISH CREEK AND HIGHLAND LOOKOUT (FS RD 8514). SITE IS 0.2 MILE BEYOND TURNOFF TO LOOKOUT.

Element occurrence data:
1993: 2 NEW SUBPOPULATIONS FOUND (NORTHERN) WITH 114 PLANTS IN FLOWER. 158 PLANTS IN FLOWER REPORTED IN POPULATION SURVEYED IN 1992 BY LESICA. 1992: TWO SUBPOPULATIONS, EACH WITH 50-100 INDIVIDUALS, FLOWERING.

General site description:
OPEN EXPOSURE ON CONCAVE MIDSLOPE. DRY, SPARSELY VEGETATED AREA ON RESIDUAL MOUNTAIN SLOPE; SANDY SOIL, CALCAREOUS METASEDIMENT PARENT MATERIAL. ASSOCIATED DOMINANT SPECIES: AGROPYRON SPICATUM, FESTUCA IDAHOENSIS, ASTRAGALUS MISER. ADDITIONAL ASSOCIATED SPECIES: PHACELIA HASTATA, DELPHINIUM BICOLOR, PHLOX LONGIFOLIA, COLLOMIA LINEARIS, BROMUS CARINATUS.

Land owner/manager:
DEERLODGE NATIONAL FOREST, BUTTE RANGER DISTRICT
DEERLODGE NATIONAL FOREST, JEFFERSON RANGER DISTRICT
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
1993: SITE REVISITED BY JOHN JOY AND STEVE SHELLY. OLD MINE PROSPECTS, ROAD, POCKET GOPHERS. ECODATA PLOT #92PL107.

Information source: LESICA, PETER. DIVISION OF BIOLOGICAL SCIENCES, UNIVERSITY OF MONTANA, MISSOULA, MT 59812. PHONE 406/728-8740.

Specimens: LESICA, P. (5738). 1992. SPECIMEN# 117161. MONTU.

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.047
Element occurrence type:

Survey site name: MOUNT HUMBUG
EO rank:
EO rank comments:

County: SILVER BOW

USGS quadrangle: MOUNT HUMBUG

Township:	Range:	Section:	TRS comments:
001S	008W	04	SE4NE4SE4

Precision: S
Survey date:
First observation: 1992-07-11
Last observation: 1992-07-11
Elevation: 6920 -
Slope/aspect: 35% / EAST
Size (acres): 1

Location:
HIGHLAND MOUNTAINS SOUTH OF BUTTE. FROM HIGHLAND ROAD (FS RD 84) TAKE ROAD TO MOOSE TOWN (FS RD 8594). FOLLOW ROAD TO MALONEY PARK, CONTINUE WEST 0.2 MILE TO TRACK GOING NORTH ACROSS CREEK AND PROCEED ON TRACK FOR CA. 0.7 MILES. SITE IS JUST EAST OF TRACK, CA. 1.6 MILES SOUTHEAST OF THE PEAK OF MOUNT HUMBUG.

Element occurrence data:
100-200 INDIVIDUALS, FLOWERS AND IMMATURE FRUIT. NEARLY ALL INFLORESCENCES EATEN OFF.

General site description:
OPEN EXPOSURE ON CONCAVE RESIDUAL LOWER SLOPE, DRY AREA, SANDY SOIL, CALC METASEDIMENT PARENT MATERIAL. ASSOCIATED DOMINANT SPECIES: CHRYSOTHAMNUS NAUSEOSUS, FESTUCA IDAHOENSIS, AGROPYRON SPICATUM. ADDITIONAL ASSOCIATED SPECIES: HAPLOPAPPUS ACAULIS, MACHAERANTHERA CANESCENS.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
PREDATION PROBABLY CAUSED BY ELK, BUT POSSIBLY DEER OR COWS. ECODATA PLOT #92PL115

Information source: LESICA, PETER. DIVISION OF BIOLOGICAL SCIENCES, UNIVERSITY OF MONTANA, MISSOULA, MT 59812. PHONE 406/728-8740.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.048
Element occurrence type:

Survey site name: STEEL CREEK
EO rank:
EO rank comments:

County: BEAVERHEAD

USGS quadrangle: STEWART MOUNTAIN

Township:	Range:	Section:	TRS comments:
003S	014W	05	SW4NE4

Precision: S
Survey date:
First observation: 1993-08-16
Last observation: 1993-09-17
Elevation: 6280 -
Slope/aspect: 6% / SOUTHWEST
Size (acres): 1

Location:
FROM WISDOM GO NORTH 0.25 MILE ON US HWY 43 AND TAKE STEEL CREEK ROAD CA. 4 MILES TO HORSE PASTURE AND EXCLOSURES. POPULATION IS NORTHEAST OF WESTERN EXCLOSURE CA. 50 YARDS.

Element occurrence data:
1993: 3 PLANTS OBSERVED ON 16 AUGUST, ALL FLOWERING. ONE FLOWER STALK BROWSED. 18 PLANTS OBSERVED ON 17 SEPTEMBER, 15% FRUITING, 85% VEGETATIVE.

General site description:
OPEN, DRY LOWER SLOPE, GRANITE PARENT MATERIAL, SANDY LOAM SOIL. ASSOCIATED SPECIES: ARTEMISIA TRIDENTATA, A. FRIGIDA, FESTUCA SCABRELLA, F. IDAHOENSIS, CHRYSOTHAMNUS VISCIDIFLORUS, POTENTILLA GRACILIS, AGROPYRON SPICATUM.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, WISDOM RANGER DISTRICT

Comments:
EVIDENCE OF HORSE GRAZING. SITE VISITED TWICE IN 1993 BY QUINN CARVER.

Information source: SENSITIVE PLANT COORDINATOR, BEAVERHEAD NATIONAL FOREST, 610 NORTH MONTANA STREET, DILLON, MT 59725.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.049
Element occurrence type:

Survey site name: BIG HOLE RIVER
EO rank:
EO rank comments:

County: DEER LODGE

USGS quadrangle: PINE HILL

Township:	Range:	Section:	TRS comments:
001N	014W	26	NW4

Precision: S
Survey date:
First observation: 1993-07-28
Last observation: 1993-07-28
Elevation: 5880 - 5940
Slope/aspect: 15% / ESE
Size (acres): 20

Location:
FROM WISDOM TRAVEL NORTH ON HWY 43 TO WEST BIG HOLE ROAD. POPULATION IS ON BOTH SIDES OF ROAD.

Element occurrence data:
215 PLANTS, 95% FLOWERING, 5% VEGETATIVE.

General site description:
OPEN, DRY LOWER SLOPE, ALLUVIAL TERRACE BREAKLANDS. GRANITE PARENT MATERIAL, SANDY LOAM SOIL. ASSOCIATED SPECIES: ARTEMISIA TRIDENTATA, A. FRIGIDA, CHRYSOTHAMNUS NAUSEOSUS, C. VISCIDIFLORUS, ERIOGONUM UMBELLATUM, E. OVALIFOLIUM, AGROPYRON SPICATUM, FESTUCA IDAHOENSIS, STIPA COMATA, S. RICHARDSONII, LUPINUS SERICEUS, ASTER STENOMERES, TRAGOPOGON DUBIUS.

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA

Comments:
OBSERVED BY Q. CARVER AND S. SHELLY.

Information source: SHELLY, J. STEPHEN. USFS REGION 1, WLF, P.O. BOX 7669, MISSOULA, MT 59807.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.050
Element occurrence type:

Survey site name: PAINTED ROCKS LAKE
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: PAINTED ROCKS LAKE

Township:	Range:	Section:	TRS comments:
002S	022W	4	SE4

Precision: S
Survey date:
First observation: 1992-07-16
Last observation: 1992-07-16
Elevation: 5800 -
Slope/aspect: 25% / NE
Size (acres): 1

Location:
POPULATION CA. 1.2 MILES WEST OF PAINTED ROCKS LAKE. SOUTH OF PAINTED ROCKS LAKE, TAKE FS RD 5660 (COAL CREEK ROAD). GO RIGHT UP 5658, THEN RIGHT ON FS RD 13407.

Element occurrence data:
14 PLANTS, 100% VEGETATIVE. APPARENT POOR REPRODUCTIVE SUCCESS--NO FLOWERING STEMS.

General site description:
DRY, OPEN UPPERSLOPE BREAKLANDS. QUARTZITE PARENT MATERIAL, TYPIC USTOCHREPTS SOIL. ASSOCIATED SPECIES: TRIFOLIUM GYMNOCARPON, BALSAMORHIZA SAGITTATA, CALAMAGROSTIS RUBESCENS, PINUS PONDEROSA, PSEUDOTSUGA MENZIESII, FRASERA ALBICAULIS, ACHILLEA MILLEFOLIUM, CENTAUREA MACULOSA, FESTUGA IDAHOENSIS, AGROPYRON SPICATUM, ANTENNARIA UMBRINELLA, SPIREA BETULIFOLIA.

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

Comments:
OBSERVED BY LINDA PIETARINEN. AREA LOGGED 20-30 YEARS AGO.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.051
Element occurrence type:

Survey site name: SHEEP CREEK
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: ALTA

Township:	Range:	Section:	TRS comments:
004S	022W	10	NE4NW4

Precision: S
Survey date:
First observation: 1992-09-09
Last observation: 1992-09-09
Elevation: 6040 -
Slope/aspect: 5-40% / WEST
Size (acres): 1

Location:
FROM WEST FORK RS, TAKE FS RD 91 PAST PAINTED ROCKS LAKE CA. 15 MILES. TURN LEFT ONTO SHEEP CREEK ROAD (FS RD 5677). DRIVE CA. 0.2 MILE TO LOCKED GATE. HIKE CA. 1 MILE TO OLD ROAD GOING SOUTHEAST TO SHEEP CREEK. GO CA. 100-200 YARDS PAST WHERE THE ROAD CROSSES SHEEP CREEK; SITE ON ROAD BED AND THE CUT BANK.

Element occurrence data:
ESTIMATED 50 PLANTS, FRUITING.

General site description:
DRY, OPEN LOWERSLOPE.

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

Comments:
OBSERVED BY D. LOCKMAN. POPULATION GROWING IN ROAD BED AND CUT SLOPE.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.052
Element occurrence type:

Survey site name: EAST FORK
EO rank:
EO rank comments:

County: DEER LODGE

USGS quadrangle: LONG PEAK

Township:	Range:	Section:	TRS comments:
002N	013W	19	NE4NE4

Precision: S
Survey date:
First observation: 1992-07-01
Last observation: 1992-07-01
Elevation: 6520 - 6640
Slope/aspect: 20% / SOUTH
Size (acres): 1

Location:
TRAVEL CA. 21 MILES NORTH OF WISDOM ON HWY 43. TURN WEST ON FS RD 1279, THEN GO CA. 8 MILES. POPULATION IS ON BOTH SIDES OF ROAD.

Element occurrence data:
26 PLANTS, 95% FLOWERING, 5% FRUITING.

General site description:
DRY, OPEN MID-TO-UPPER SLOPE BREAKLANDS. GRANITE PARENT MATERIAL. COARSE SANDY SOIL. ASSOCIATED SPECIES: ARTEMISIA TRIDENTATA, LUPINUS ARGENTEUS, BALSAMORHIZA SAGITTATA, FRAGARIA VIRGINIANA, GERANIUM VISCOSISSIMUM, AGROPYRON SPICATUM, AGROPYRON DESERTORUM, FESTUCA IDAHOENSIS.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, WISE RIVER RANGER DISTRICT

Comments:
OBSERVED BY QUINN CARVER. ROAD RUNS THROUGH POPULATION.

Information source: SENSITIVE PLANT COORDINATOR, BEAVERHEAD NATIONAL FOREST, 610 NORTH MONTANA STREET, DILLON, MT 59725.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.053
Element occurrence type:

Survey site name: HOWELL CREEK
EO rank:
EO rank comments:

County: BEAVERHEAD

USGS quadrangle: PINTLAR LAKE

Township:	Range:	Section:	TRS comments:
001N	015W	21	SE4

Precision: S
Survey date:
First observation: 1992-06-16
Last observation: 1992-06-16
Elevation: 6300 - 6500
Slope/aspect: 40% / SOUTHWEST
Size (acres): 4

Location:
TRAVEL 15 MILES ON HWY 43 NORTH FROM WISDOM. TURN LEFT ONTO FS RD 1251 AND LEFT ONTO FS RD 185 WHEN 1251 SPLITS. GO CA. 2 MILES TO HOWELL CREEK; SITE ON FAR WEST PART OF GRAZING ALLOTMENT NEXT TO QUAKING ASPEN STAND.

Element occurrence data:
4 PLANTS, 100% FLOWERING. POOR REPRODUCTIVE SUCCESS.

General site description:
DRY, OPEN MID GLACIATED SLOPE. GRANITE PARENT MATERIAL. SANDY LOAM SOIL. ASSOCIATED SPECIES: ARTEMISIA TRIDENTATA, LUPINUS ARGENTEUS, BALSAMORHIZA SAGITTATA, FRAGARIA VIRGINIANA, GERANIUM VISCOSISSIMUM, AGROPYRON SPICATUM, FESTUCA IDAHOENSIS.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, WISDOM RANGER DISTRICT

Comments:
OBSERVED BY QUINN CARVER, AND M. FERNANDEZ. EVIDENCE OF GRAZING BY ELK.

Information source: SENSITIVE PLANT COORDINATOR, BEAVERHEAD NATIONAL FOREST, 610 NORTH MONTANA STREET, DILLON, MT 59725.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.054
Element occurrence type:

Survey site name: SWAMP CREEK
EO rank:
EO rank comments:

County: DEER LODGE

USGS quadrangle: LONG PEAK

Township:	Range:	Section:	TRS comments:
002N	014W	23	SE4; 24 SW4

Precision: S
Survey date:
First observation: 1992-07-01
Last observation: 1992-07-01
Elevation: 6320 - 6400
Slope/aspect: 40% / SOUTH
Size (acres): 1

Location:
FROM WISDOM TRAVEL CA. 21 MILES NORTH ON HWY 43. TURN WEST ONTO FS RD 1223 AND GO CA. 5 MILES TO INTERSECTION WITH FS RD 1279. ON 1279 TRAVEL CA. 4.5 MILES; POPULATION ON ROADCUT AND BOTH SIDES OF ROAD.

Element occurrence data:
14 PLANTS, 100% FLOWERING.

General site description:
DRY, OPEN, MIDSLOPE BREAKLANDS. GRANITE PARENT MATERIAL. COARSE SANDY SOIL, WITH ARTEMISIA TRIDENTATA, LUPINUS ARGENTEUS, BALSAMORHIZA SAGITTATA, FRAGARIA VIRGINIANA, GERANIUM VISCOSISSIMUM, AGROPYRON SPICATUM, AGROPYRON DESERTORUM, FESTUCA IDAHOENSIS.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, WISE RIVER RANGER DISTRICT

Comments:
OBSERVED BY QUINN CARVER, ROAD RUNNING THROUGH POPULATION.

Information source: SENSITIVE PLANT COORDINATOR, BEAVERHEAD NATIONAL FOREST, 610 NORTH MONTANA STREET, DILLON, MT 59725.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.055
Element occurrence type:

Survey site name: DOOLITTLE CREEK
EO rank:
EO rank comments:

County: BEAVERHEAD

USGS quadrangle: PROPOSAL ROCK

Township:	Range:	Section:	TRS comments:
001S	014W	29	N2, NW4SE4

Precision: S
Survey date:
First observation: 1992-06-21
Last observation: 1992-06-21
Elevation: 6080 - 6400
Slope/aspect: 35% / SOUTH
Size (acres):

Location:
FROM WISDOM, GO CA. 8 MILES NORTH ON HWY 43, TURN EAST ON DOOLITTLE ROAD (FS RD 2421). GO CA. 1.5 MILES. POPULATION STARTS ON ROAD CUT ON NORTH SIDE OF ROAD.

Element occurrence data:
52 PLANTS, 100% FLOWERING.

General site description:
OPEN, DRY, MID TO LOWER SLOPE BREAKLANDS. GRANITE PARENT MATERIAL. SANDY LOAM SOIL. ASSOCIATED SPECIES: ARTEMISIA TRIDENTATA, CHRYSOTHAMNUS VISCIDIFLORUS, FESTUCA IDAHOENSIS, AGROPYRON SPICATUM, KOELERIA CRISTATA, LUPINUS SERICEUS, ACHILLEA MILLIFOLIA, ARTEMISIA TRIPARTITA, ERIOGONUM FLAVUM, ERIOGONUM UMBELLATUM.

Land owner/manager:
CONSERVATION EASEMENT: MONTANA LAND RELIANCE
BEAVERHEAD NATIONAL FOREST, WISDOM RANGER DISTRICT

Comments:
OBSERVED BY J. JONES AND M. MANTAS. EVIDENCE OF GRAZING.

Information source: MANTAS, MARIA. [FOREST BOTANIST]. FLATHEAD NATIONAL FOREST, 1935 THIRD AVENUE EAST, KALISPELL, MT 59901. 406/758-5337.

Specimens: MANTAS, M. (492). 1992. ID.

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.056
Element occurrence type:

Survey site name: ROBBINS GULCH
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: ROBBINS GULCH

Township:	Range:	Section:	TRS comments:
002N	020W	10	SE4SW4; 15 NW4

Precision: S
Survey date:
First observation: 1993-10-02
Last observation: 1995-07-26
Elevation: 5080 - 5600
Slope/aspect: 42-50% / ESE, SOUTH
Size (acres): 2

Location:
CA. 8 MILES SOUTH OF DARBY. TAKE ROBBINS GULCH ROAD (FS RD 446) EAST 4 MILES TO FS GATE. PROCEED CA. 0.75 MILE PAST GATE, TAKE ROAD AT SWITCHBACK TO SOUTH. PLANTS ALONG ROAD.

Element occurrence data:
1995: 152 PLANTS, 30% FLOWERING/FRUITING. 1993: 18 PLANTS, 11 WITH SPENT FLOWERS, 5 WITH BASAL LEAVES ONLY.

General site description:
DRY, OPEN UPPERSLOPE, DISSECTED MOUNTAIN. ULTIC HAPLOXEROLLS SOIL. HIGHLY WEATHERED GRANITIC PARENT MATERIAL. PINUS PONDEROSA/FESTUCA IDAHOENSIS-AGROPYRON SPICATUM HABITAT TYPE. ASSOCIATED SPECIES: CENTAUREA MACULOSA, PINUS PONDEROSA, FESTUCA IDAHOENSIS, ACHILLEA MILLEFOLIUM, AGROPYRON SPICATUM, PHACELIA SPP., PENSTEMON SP., BALSAMORHIZA SAGITTATA. MOST PENSTEMON LEMHIENSIS GROWING IN ROADCUT, WHERE CENTAUREA IS NOT AS DENSE.

Land owner/manager:
BITTERROOT NATIONAL FOREST, DARBY RANGER DISTRICT

Comments:
ADDITIONAL POPULATIONS FOUND IN 1995 BY CRAIG ODEGARD; AREA LOGGED DURING PREVIOUS 2 YEARS. OBSERVED IN 1993 BY LINDA PIETARINEN.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.057
Element occurrence type:

Survey site name: DEEP CREEK/BIG HOLE RIVER
EO rank:
EO rank comments:

County: DEER LODGE

USGS quadrangle: LINCOLN GULCH

Township:	Range:	Section:	TRS comments:
002N	012W	33	SW4NE4

Precision: S
Survey date:
First observation: 1993-07-07
Last observation: 1993-07-07
Elevation: 5600 -
Slope/aspect: 24% /SW
Size (acres): 1

Location:
FROM WISE RIVER TRAVEL CA. 10 MILES ON HWY 43 TO MILE MARKER 53. CONTINUE CA. 0.4 MILE FARTHER. POPULATION ON RIGHT SIDE OF HWY, CA. 15 FEET FROM PAVEMANT OF ROADCUT.

Element occurrence data:
1 PLANT, IN FLOWER.

General site description:
DRY, OPEN, LOWERSLOPE BREAKLANDS. GRANITE PARENT MATERIAL, SANDY LOAM SOIL. ASSOCIATED SPECIES: PENSTEMON RYDBERGII, AGROPYRON SPICATUM, ARTEMISIA TRIDENTATA.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, WISE RIVER RANGER DISTRICT
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
OBSERVED BY QUINN CARVER AND CHRIS QUEEN. DISTURBANCE BY ROADCUT. OWNERSHIP OF SITE UNCERTAIN: 1990 LAND USE MAPS SHOW BLM AND PRIVATE; USFS OBSERVER INDICATES USFS OWNERSHIP.

Information source: SENSITIVE PLANT COORDINATOR, BEAVERHEAD NATIONAL FOREST, 610 NORTH MONTANA STREET, DILLON, MT 59725.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.058
Element occurrence type:

Survey site name: SAWLOG
EO rank: C
EO rank comments: SMALL POPULATION.

County: DEER LODGE

USGS quadrangle: PINE HILL

Township:	Range:	Section:	TRS comments:
001N	013W	18	SE4; SE4NE4

Precision: S
Survey date: 1994-07-04 Elevation: 5850 - 5980
First observation: 1993-07-12 Slope/aspect: 10-60% / EAST, SOUTH
Last observation: 1994-07-04 Size (acres): 2

Location:
FROM WISDOM TRAVEL NORTH CA. 18 MILES ON HWY 43 TO MILE MARKER 45. POPULATION IS ON LEFT SIDE OF HIGHWAY AT SAWLOG FISHING ACCESS.

Element occurrence data:
1993: 84 PLANTS, 90% FLOWERING, 10% VEGETATIVE. 2 SUBPOPULATIONS.
1994: NEW EASTERN SUBPOPULATION WITH CA. 20 PLANTS, 60% FLOWERING, 40% VEGETATIVE.

General site description:
OPEN, DRY LOWERSLOPE BREAKLANDS. GRANITE PARENT MATERIAL, COARSE SANDY LOAM SOIL. ASSOCIATED SPECIES: AGROPYRON SPICATUM, CHRYSOTHAMNUS VISCIFLORUS, ARTEMISIA TRIDENTATA, ARTEMESIA FRIGIDA, ACHILLEA MILLEFOILUM, TRAGOPOGON DUBIUS, POLEMONIUM MICRANTHUM, ERIOGONUM CAPISTRATUM, ARENARIA CONGESTA, PINUS FLEXILIS, PSEUDOTSUGA MENZIESII, POA PRATENSIS, GALIUM BOREALE.

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA
BEAVERHEAD NATIONAL FOREST, WISDOM RANGER DISTRICT

Comments:
OBSERVED BY QUINN CARVER IN 1993. DISTURBANCE BY ROADCUT. 1990 INTERAGENCY MAP SHOWS SITE UNDER BLM OWNERSHIP; USFS OWNERSHIP INDICATED BY OBSERVER. 1994: DISTURBANCE BY RIVER, ROAD ABOVE SITE, AND FISHERMEN WALKING THROUGH.

Information source: LESICA, PETER. DIVISION OF BIOLOGICAL SCIENCES, UNIVERSITY OF MONTANA, MISSOULA, MT 59812. PHONE 406/728-8740.

Specimens: LESICA, P. (6358). 1994. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.059
Element occurrence type:

Survey site name: MUSSIGBROD CREEK
EO rank:
EO rank comments:

County: BEAVERHEAD

USGS quadrangle: MUSSIGBROD LAKE

Township:	Range:	Section:	TRS comments:
001S	016W	9	SE4

Precision: S
Survey date:
First observation: 1993-07-06
Last observation: 1993-07-06
Elevation: 6330 -
Slope/aspect: 10% / SW
Size (acres): 1

Location:
TRAVEL 1 MILE FROM WISDOM ON HWY 43. TURN RIGHT ONTO LOWER NORTH FORK ROAD, PROCEED 7 MILES. TURN LEFT AT MUSSIGBROD LAKE SIGN, PROCEED 5.5 MILES. POPULATION IS ON BOTH SIDES OF ROAD.

Element occurrence data:
80-90 PLANTS, 80% FLOWERING, 20% VEGETATIVE.

General site description:
DRY, OPEN LOWERSLOPE BREAKLANDS. GRANITE PARENT MATERIAL, COARSE SANDY LOAM SOIL. ASSOCIATED SPECIES: ARTEMISIA TRIDENTATA, CHRYSOTHAMNUS VISCIDIFLORUS, ERIOGONUM UMBELLATUM, ERIGERON CORYMBOSUS, AGROPYRON SPICATUM, FESTUCA IDAHOENSIS, STIPA RICHARDSONII, OCTHOCARPUS TENUIFOLIUS, PHLEUM PRATENSE, POTENTILLA HIPPIANA, VIOLA SPP.

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
OBSERVED BY QUINN CARVER. DISTURBANCE BY ROADCUT. POPULATION CA. 100 YARDS FROM FOREST BOUNDARY.

Information source: SENSITIVE PLANT COORDINATOR, BEAVERHEAD NATIONAL FOREST, 610 NORTH MONTANA STREET, DILLON, MT 59725.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.060
Element occurrence type:

Survey site name: LITTLE TRAPPER CREEK
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: BURNT RIDGE

Township:	Range:	Section:	TRS comments:
002N	021W	15	SW4NE4

Precision: S
Survey date:
First observation: 1993-05-06
Last observation: 1993-05-06
Elevation: 4800 -
Slope/aspect: 48% / SE
Size (acres): 1

Location:
TAKE HWY 93 SOUTH FROM DARBY TO CONNER. TAKE WEST FORK ROAD (FS RD 473) CA. 5 MILES.

Element occurrence data:
47 PLANTS, 100% VEGETATIVE. OLD SEED HEADS FOUND.

General site description:
OPEN, DRY DISSECTED MIDSLOPE. GRANITE/VOLCANIC PARENT MATERIAL. TYPIC ENTROBORALFS SOIL. ASSOCIATED SPECIES: FRASERA ALBICAULIS, CENTAUREA MACULOSA, PENSTEMON SPP., PHYSOCARPUS MALVACEUS, COLLINSIA PARVIFLORA, SYMPHORICARPOS ALBUS, BALSAMORHIZA SAGITTATA, BERBERIS REPENS, CAREX GEYERI, AGROPYRON SPICATUM, PSEUDOTSUGA MENZIESII, PINUS PONDEROSA, LOMATIUM SPP.

Land owner/manager:
BITTERROOT NATIONAL FOREST, DARBY RANGER DISTRICT

Comments:
OBSERVED BY LINDA PIETARINEN AND ROGER FERRIEL.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.061
Element occurrence type:

Survey site name: CASTNER CREEK
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: ALTA

Township:	Range:	Section:	TRS comments:
003S	022W	9	NE4

Precision: S
Survey date:
First observation: 1993-07-08
Last observation: 1993-07-08
Elevation: 5200 - 5320
Slope/aspect: 45% / SW
Size (acres): 5

Location:
TAKE WEST FORK ROAD (FS RD 473) CA. 32 MILES SOUTH FROM DARBY. POPULATION ON OPEN SLOPE NORTH OF CASTNER CREEK.

Element occurrence data:
59 PLANTS, 80% FLOWERING, 10% VEGETATIVE, 10% FRUITING. GOOD REPRODUCTIVE SUCCESS.

General site description:
DRY, OPEN MIDSLOPE. QUARTZITE/ARGILLITE/SILTITE PARENT MATERIAL. ULTIC HAPLOXEROLLS SOIL. ASSOCIATED SPECIES: AGROPYRON SPICATUM, CHRYSOTHAMNUS SP., SYMPHORICARPOS ALBUS, PINUS PONDEROSA, PRUNUS VIRGINIANA, BALSAMORHIZA SAGITTATA, CENTAUREA MACULOSA, PHLEUM, LUPINUS SP., SEDUM STENOPETALUM, GILEA, ANTENNARIA RACEMOSA, FRAGARIA VIRGINIANA.

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
OBESERVED BY LAREE HAFNER. DISTURBANCE BY OLD LOGGING ROADS. SPECIMEN COLLECTED BY LAREE HAFNER; COLLECTION NUMBER AND REPOSITORY UNKNOWN.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.062
Element occurrence type:

Survey site name: WOODS CREEK
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: ALTA

Township:	Range:	Section:	TRS comments:
003S	022W	19	SE4

Precision: S
Survey date:
First observation: 1993-06-10
Last observation: 1993-06-10
Elevation: 6040 -
Slope/aspect: 65% / SE
Size (acres): 3

Location:
TAKE WEST CREEK ROAD CA. 32 MILES SOUTH FROM CONNER. TURN RIGHT ONTO WOODS CREEK ROAD; PROCEED CA. 2 MILES. SITE ABOVE ROAD TO NORTH, ALMOST TO TOP OF RIDGE IN ROCKY AREA.

Element occurrence data:
14 PLANTS, 10% FLOWERING (IN BUD).

General site description:
OPEN, DRY, UPPERSLOPE BREAKLANDS. GRANITE PARENT MATERIAL, ULTIC HAPLOXEROLLS AND ULTIC ARGIXEROLLS SOIL. ASSOCIATED SPECIES: GILIA AGGREGATA, CERCOCARPUS LEDIFOLIUS, ARTEMISIA TRIDENTATA, AGROPYRON SPICATUM, BERBERIS REPENS, FESTUCA IDAHOENSIS, PHYSARIA GEYERII, BALSAMORHIZA SAGITTATA, CASTILLEJA COVILLEANA, CALOCHORTUS NUTTALLII, SYMPHORICARPOS ALBUS, PSEUDOTSUGA MENZIESII, CHRYSOTHAMNUS SP.

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

Comments:
OBSERVED BY LINDA PIETARINEN AND LAREE HAFNER.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.063
Element occurrence type:

Survey site name: FRANCIS CREEK
EO rank:
EO rank comments:

County: BEAVERHEAD

USGS quadrangle: WISDOM
STEWART MOUNTAIN

Township:	Range:	Section:	TRS comments:
003S	014W	18	W2, SE4

Precision: S
Survey date:
First observation: 1992-07-09
Last observation: 1993-07-20
Elevation: 6340 - 6700
Slope/aspect: 10-12% / SW-S
Size (acres): 1

Location:
ON HWY 43 TRAVEL CA. 0.25 MILE NORTH OF WISDOM. TURN RIGHT ON STEELE CREEK ROAD, GO CA. 5 MILES, TURN RIGHT ONTO STEELE-FOX ROAD. GO CA. 2 MILES TO A FORK. TAKE RIGHT-HAND FORK. TRAVEL CA. 3 MILES TO JEEP TRAIL ON RIGHT. TAKE JEEP TRAIL CA. 1 MILE FOR CENTRAL POPULATION, 2 MILES FOR WEST POPULATION, AND 3 MILES FOR EASTERN POPULATION.

Element occurrence data:
4 SUBPOPULATIONS, 61 PLANTS COUNTED, FRUITING, FLOWERING, AND VEGETATIVE.

General site description:
DRY, OPEN, LOWER AND MIDSLOPES, COARSE SOILS, WITH ARTEMISIA TRIDENTATA, FESTUCA IDAHOENSIS, AGROPYRON SPICATUM, FESTUCA SCABRELLA, CHRYSOTHAMNUS VISCIDIFLORUS, C. NAUSEOSUS AND OTHERS. COMPLETE LIST OF ASSOCIATED SPECIES FOR SUBPOPULATIONS ON FILE AT MTHP.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, WISDOM RANGER DISTRICT

Comments:
OBSERVED BY QUINN CARVER. SOME DISTURBANCE BY ROAD AND GRAZING.

Information source: SENSITIVE PLANT COORDINATOR, BEAVERHEAD NATIONAL FOREST, 610 NORTH MONTANA STREET, DILLON, MT 59725.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.064
Element occurrence type:

Survey site name: SOLDIER CREEK
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: ALTA

Township:	Range:	Section:	TRS comments:
003S	022W	31	SE4

Precision: S
Survey date:
First observation: 1993-06-17
Last observation: 1993-06-17
Elevation: 6280 - 6380
Slope/aspect: 50% / SSE
Size (acres): 1

Location:
SITE CA. 28 MILES SOUTHWEST OF CONNER. OFF BEAVER CREEK ROAD. SITE ON SLOPE NORTHEAST OF SOLDIER CREEK

Element occurrence data:
16 PLANTS, 10% FLOWERING.

General site description:
DRY, OPEN UPPERSLOPE BREAKLANDS. GRUST WEATHERED GRANITE PARENT MATERIAL, ULTIC HAPLOXEROLLS AND ULTIC ARGIXEROLLS SOIL. ASSOCIATED SPECIES: BALSAMORHIZA SAGITTATA, ARTEMISIA TRIDENTATA, SEDEM LANCEOLATUM, LUPINUS WYETHII, CHRYSOTHAMNUS SP., ERIOGONUM UMBELLATUM, FESTUCA IDAHOENSIS, AGROPYRON SPICATUM.

and owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

Comments:
OBSERVED BY LINDA PIETARINEN AND LAREE HAFNER.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.065
Element occurrence type:

Survey site name: PINTLAR CREEK
EO rank:
EO rank comments:

County: DEER LODGE

USGS quadrangle: PINTLAR LAKE

Township:	Range:	Section:	TRS comments:
001N	015W	23	

Precision: M
Survey date:
First observation: 1993-07-17
Last observation: 1993-07-17
Elevation: 6200 -
Slope/aspect:
Size (acres):

Location:
ON ROAD TO PINTLAR LAKE FROM BIG HOLE HWY, ON SHORT, STEEP ROADCUT ON BOTH SIDES OF THE ROAD.

Element occurrence data:
+6 PLANTS.

General site description:
IN DRY PRARIE VEGETATION ON SHORT, STEEP ROADCUT. ERIOGONUM UMBELLATUM COMMON.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, WISE RIVER RANGER DISTRICT

Comments:
OBSERVED BY KLAUS, GERTRUD, AND IMMO LACKSCHEWITZ. LOCATION APPROXIMATE--MAY BE ALONG ROAD FOR CA. 1-2 MILES TO SOUTH.

Information source: SENSITIVE PLANT COORDINATOR, BEAVERHEAD NATIONAL FOREST, 610 NORTH MONTANA STREET, DILLON, MT 59725.

Specimens: LACKSCHEWITZ, K. (11980). 1993. SPECIMEN# 118499. MONTU.

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.066
Element occurrence type:

Survey site name: BIG HOLE PASS
EO rank:
EO rank comments:

County: BEAVERHEAD

USGS quadrangle: TASH PEAK

Township:	Range:	Section:	TRS comments:
006S	013W	8	S2

Precision: S
Survey date:
First observation: 1994-09-02
Last observation: 1994-09-02
Elevation: 7050 - 7320
Slope/aspect: 5-25% / SW
Size (acres):

Location:
FROM DILLON, TAKE I-15 SOUTH TO TURNOFF AT STATE HIGHWAY 278, HEAD WEST FOR CA. 28 MILES TO BIG HOLE PASS. PLANTS ARE ON EITHER SIDE OF ROAD EAST OF THE PASS.

Element occurrence data:
26 PLANTS; 5 SUBPOPULATIONS. 100% FRUITING. TOTAL AREA COVERED BY PLANTS IS LOW WITH SUBPOPULATIONS UP TO 1 MILE APART.

General site description:
OPEN, DRY, SANDY LOAM. ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS COMMUNITY TYPE. NATIVE HABITAT AND OLD ROAD CUTS THAT HAVE REGENERATED. ASSOCIATED SPECIES: AMELANCHIER ALNIFOLIA, AGROPYRON SPICATUM, ANTENNARIA MICROPHYLLA, ARENARIA CONGESTA, ERIOGONUM MANCUM, KOELERIA MACRANTHA, ITIERACIUM CYNOGLOSSOIDES, POA SECUNDA.

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, DILLON RANGER DISTRICT

Comments:
OBSERVED BY L. S. ROE. SMALL POPULATION MAY BE THREATENED BY PROPOSED ROAD REALIGNMENT.

Information source: ROE, LISA SCHASSBERGER. [BOTANIST.] 531 SPENCER, HELENA, MONTANA 59601.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.067
Element occurrence type:

Survey site name: BEAVER CREEK
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: ALTA

Township:	Range:	Section:	TRS comments:
004S	022W	4	SW4

Precision: S
Survey date:
First observation: 1994-07-18
Last observation: 1994-07-18
Elevation: 6120 -
Slope/aspect: 10% / SE
Size (acres): 1

Location:
4.5 MILES FROM IDAHO BORDER, BITTERROOT NATIONAL FOREST. TAKE ROAD DOWN PAST PAINTED ROCKS RESERVOIR, PAST ALTA TOWARD HORSE CREEK PASS. TAKE ROAD 5677 TO BRIDGE; HEAD WEST UP RIDGE TO OLD SKID TRAILS AT TOP (0.25 MILES).

lement occurrence data:
7-10 INDIVIDUALS.

General site description:
DRY, PARTIALLY SHADED DISSECTED MOUNTAIN SLOPE. SILTY SAND, QUARTZITE PARENT MATERIAL. ASSOCIATED SPECIES: AGROPYRON SPICATUM, FESTUCA IDAHOENSIS, CAREX GEYERI, PSEUDOTSUGA MENZIESII, BALSAMORHIZA SAGITTATA, BERBERIS REPENS, SYMPHORICARPOS SP.

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

omments:
OBSERVED BY N. BANISTER: BEGINNING OF SKID TRAIL OR OLD ROADCUT IS EVIDENCE OF DISTURBANCE.

nformation source: BOTANIST, MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVENUE, HELENA, MT 59620-1800.

pecimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.068
Element occurrence type:

Survey site name: CHRISTMAS TREE CREEK
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: ALTA

Township:	Range:	Section:	TRS comments:
003S	022W	13	SW4; 14 SE4

Precision: S
Survey date:
First observation: 1994-07-05
Last observation: 1994-07-05
Elevation: 7280 - 7400
Slope/aspect: 20% / SW
Size (acres):

Location:
TAKE ROAD 5685 FROM SOUTH OF ALTA (WEST FORK OF BITTERROOT) FOR CA. 8 MILES TO WHERE IT IS DIRECTLY SOUTH OF THUNDER MOUNTAIN. WALK ALONG RIDGE LEADING UP THUNDER MOUNTAIN.

Element occurrence data:
2 SUBPOPULATIONS CA. 1000 FEET APART; 7 PLANTS IN 1 SUBPOPULATION, 5 IN THE OTHER. 10 PLANTS VEGETATIVE, 2 ALMOST FLOWERING.

General site description:
DRY, SANDY OPEN ROLLING UPLANDS, MANY BOULDERS. ASSOCIATED SPECIES: PSEUDOTSUGA MENZIESII, CALAMAGROSTIS RUBESCENS, AGROPYRON SPICATUM, TARAXACUM SP., BROMUS SP., CAREX GEYERI, SENECIO INTEGERRIMUS, GILIA AGGREGATA, ARABIS HOLBOELLII, GERANIUM VISCOSISSIMUM, LUPINUS WYETHII, ACHILLEA MILLEFOLIUM, COLLINSIA PARVIFLORA, DESCURAINIA RICHARDSONII, PHACELIA HETEROPHYLLA, ALLIUM PARVUM, FRASERA ALBICAULIS, EPILOBIUM GLABERRIMUM (?).

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

Comments:
OBSERVED BY C. ODEGARD: SOIL SURFACE HEAVILY TRAMPLED BY DEER AND ELK.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.069
Element occurrence type:

Survey site name: JOHNSON CREEK
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: ALTA

Township:	Range:	Section:	TRS comments:
004S	022W	2	SW4SW4

Precision: S
Survey date:
First observation: 1994-06-29
Last observation: 1994-06-29
Elevation: 7100 -
Slope/aspect: 20% / SE
Size (acres): 1

Location:
DRIVE ALL THE WAY UP THE WEST FORK OF THE BITTERROOT (SOUTH OF ALTA) AND TURN ON ROAD 5677 TO THE EAST. FOLLOW THIS ROAD 4-5 MILES UNTIL IT NEARS THE EXTREME SOUTHWEST CORNER OF SECTION 2, THEN PARK AND CLIMB UP TO THE RIDGE SEVERAL HUNDRED YARDS TO THE EAST.

Element occurrence data:
22 PLANTS, 6 ALMOST FLOWERING, 16 VEGETATIVE; BLACK ANTS ON THE FLOWERS.

General site description:
DRY, SANDY, MOSTLY OPEN LEEWARD SIDE OF RIDGE CREST. ASSOCIATED SPECIES: PSEUDOTSUGA MENZIESII, ARTEMISIA TRIDENTATA, CAREX GEYERI, PHACELIA HETEROPHYLLA, MAHONIA REPENS, LUPINUS WYETHII, SYMPHORICARPOS ALBUS, MYOSOTIS ALPESTRIS, GERANIUM VISCOSISSIMUM, HIERACIUM SP., AGROPYRON SPICATUM, FESTUCA SCABRELLA, ACHILLEA MILLEFOLIUM, MICROSERIS NUTANS, ANTENNARIA SP., KOELERIA MACRANTHA, TRAGOPOGON DUBIUS.

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

Comments:
OBSERVED BY C. ODEGARD: LIGHT ELK DISTURBANCE, OLD ROADS AND PROSPECTS NEARBY.

Information source: BOTANIST, MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVENUE, HELENA, MT 59620-1800.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.070
Element occurrence type:

Survey site name: WEST FORK BITTERROOT RIVER
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: ALTA

Township:	Range:	Section:	TRS comments:
003S	022W	16	NE4

Precision: S
Survey date:
First observation: 1994-06-20
Last observation: 1994-06-20
Elevation: 5400 -
Slope/aspect: 65% / WEST
Size (acres): 1

Location:
FROM ALTA, FOLLOW ROAD UP WEST FORK OF BITTERROOT RIVER TO THUNDER CREEK AND CONTINUE 0.25 MILE FURTHER. POPULATION IS 200-300 FEET ABOVE ROAD (TO NORTHEAST) ON STEEP, OPEN, SOUTHWEST SLOPE.

Element occurrence data:
2 PLANTS FOUND, 1 FLOWERING, 1 VEGETATIVE.

General site description:
DRY, OPEN, ROCKY UNGLACIATED STEEP MIDSLOPE. QUARTZITE, CALC-SILICATE GNEISS PARENT MATERIAL. ASSOCIATED SPECIES: AGROPYRON SPICATUM, ERIGERON SP., FESTUCA IDAHOENSIS, KOELERIA MACRANTHA, CAREX GEYERI, TRAGOPOGON SP., ERIOGONUM UMBELLATUM, BALSAMORHIZA SAGITATTA, ACHILLEA MILLEFOLIUM, FRASERA ALBICAULIS, PRUNUS VIRGINIANA, SEDUM LANCEOLATUM, MAHONIA REPENS, GEUM TRIFLORUM, CREPIS ATRIBARBA, ZIGADENUS VENENOSUS, BROMUS TECTORUM, COLLINSIA PARVIFLORA, POTENTILLA GLANDULOSA.

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

Comments:
OBSERVED BY C. ODEGARD: DOWNSLOPE MOVEMENT ASSOCIATED WITH ANIMAL TRACKS AND TRAILS. QUICK SURVEY; PROBABLY MORE PLANTS IN THE IMMEDIATE AREA.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.071
Element occurrence type:

Survey site name: EAST FORK BITTERROOT RIVER
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: MEDICINE HOT SPRINGS

Township:	Range:	Section:	TRS comments:
001N	020W	2	NW4SE4

Precision: S
Survey date:
First observation: 1994-06-05
Last observation: 1994-06-05
Elevation: 4600 -
Slope/aspect: 57% / ESE
Size (acres): 5

Location:
ON HIGHWAY 93, DRIVE 1.2 MILES DOWNRIVER FROM TURNOFF TO WARM SPRINGS CREEK AND ASCEND RIDGE.

Element occurrence data:
8 PLANTS, 2 FLOWERING; ANTS PRESENT ON SEVERAL.

General site description:
DRY, OPEN, STEEP UNGLACIATED SLOPE. GRAVELLY, SANDY LOAM, GRANITE PARENT MATERIAL. ASSOCIATED SPECIES: CENTAUREA MACULOSA, AGROPYRON SPICATUM, FESTUCA IDAHOENSIS, PINUS PONDEROSA, KOELERIA MICRANTHA, PHACELIA SP., BALSAMORHIZA SAGITTATA, ALYSSUM ALLYSSOIDES, COLLINSIA PARVIFLORA, BROMUS TECTORUM, ERIGERON COMPOSITUS, ARABIS HOLBOELLII.

Land owner/manager:
BITTERROOT NATIONAL FOREST, SULA RANGER DISTRICT

Comments:
OBSERVED BY C. ODEGARD AND D. GOSLIN: WILDLIFE AND/OR COW TRAILS CROSS MUCH OF THE SLOPE.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

ıly 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

cientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

:lobal rank: G3 Forest Service status: SENSITIVE
ɔtate rank: S2 Federal Status: C2

lement occurrence code: PDSCR1L3N0.072
lement occurrence type:

Survey site name: BLUE JOINT BAY
EO rank:
EO rank comments:

County: RAVALLI

JSGS quadrangle: PAINTED ROCKS LAKE

Township:	Range:	Section:	TRS comments:
002S	022W	03	NW4

Precision: S
Survey date:
First observation: 1994-07-20
Last observation: 1994-07-20
Elevation: 5400 -
Slope/aspect: 30% / SOUTH
Size (acres): 1

Location:
PAINTED ROCKS RESERVOIR, 0.25 MILE NORTH OF BLUE JOINT BAY.

Element occurrence data:
5-7 INDIVIDUALS.

General site description:
OPEN, DRY LOWER SLOPE. SAND SILT SOIL TEXTURE. ASSOCIATED SPECIES: AGROPYRON SPICATUM, FESTUCA IDAHOENSIS, BALSAMORHIZA SAGITTATUM, PINUS PONDEROSA, PSEUDOTSUGA MENZIESII.

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT
PAINTED ROCKS STATE RECREATION SITE

Comments:
OBSERVED BY N. BANISTER. SITE CURRENTLY ON STATE LANDS BUT SOON TO BECOME USFS LANDS.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.073
Element occurrence type:

Survey site name: BEAVER CREEK
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: HORSE CREEK PASS

Township:	Range:	Section:	TRS comments:
004S	023W	1	NW4

Precision: S
Survey date:
First observation: 1994-07-18
Last observation: 1994-07-18
Elevation: 7400 -
Slope/aspect: 20% / SSW
Size (acres): 0.5

Location:
CA. 1.5 AIR MILES NNE OF HORSE CREEK PASS ON RIDGE AMONG OLD MINE DWELLINGS.

Element occurrence data:
50-80 PLANTS. 10% LATE FLOWERING TO FRUITING, 90% VEGETATIVE.

General site description:
WINDSWEPT, OPEN ROCKY RIDGE; DRY, NARROW, ROUNDED, UNGLACIATED. GREY-BLACK CRYSTALLINE ROCKS, CREATING WARM MICROENVIRONMENT. ASSOCIATED SPECIES: ERIOGONUM FLAVUM, CAREX GEYERI, AGROPYRON SPICATUM, FESTUCA IDAHOENSIS, KOELERIA MACRANTHA, ACHILLEA MILLEFOLIUM, ERIOGONUM UMBELLATUM.

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

Comments:
OBSERVED BY C. ODEGARD: SEVERAL FLOWERING STEMS GRAZED BY DEER/ELK.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.074
Element occurrence type:

Survey site name: JOHNSON CREEK
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: SHOUP

Township:	Range:	Section:	TRS comments:
004S	022W	15	NE4SE4

Precision: S
Survey date:
First observation: 1994-17-19
Last observation: 1994-07-19
Elevation: 7800 -
Slope/aspect: 60% / SE
Size (acres): 1

Location:
HEADWATERS OF JOHNSON CREEK. DRIVE AS FAR AS POSSIBLE UP THE WEST FORK OF THE BITTERROOT RIVER, THEN GO UP BEAVER CREEK TO HORSE CREEK PASS, CROSS INTO IDAHO, HEAD SOUTHEAST ON ROADS 44 AND 38 ALONG THE DIVIDE UNTIL THE ROAD LEAVES THE DIVIDE, FOLLOW THE DIVIDE TRAIL TO THE NORTHEAST FOR ABOUT A MILE, THEN TRAVEL CROSS-COUNTRY INTO THE HEADWATERS OF JOHNSON CREEK.

Element occurrence data:
24 PLANTS, 7 FLOWERING, 17 VEGETATIVE.

General site description:
MOSTLY OPEN DRY MIDSLOPE. SANDY, GRAVELLY SOILS; ROCK AND BARE SOIL ON OTHERWISE GRASS-COVERED SLOPE. ASSOCIATED SPECIES: AGROPYRON SPICATUM, CAREX GEYERI, ANTENNARIA SP., KOELARIA MACRANTHA, BALSAMORHIZA SAGITATTA, ERIOGONUM UMBELLATUS, YELLOW CASTILLEJA, LUPINUS WYETHII, BERBERIS REPENS, ACHILLEA MILLEFOLIUM, COLLINSIA PARVIFLORA, HIERACIUM ALBIFLORUM (?), PHACELIA HETEROPHYLLA, GERANIUM VISCOSISSIMUM, MICROSERIS NUTANS, SYMPHORICARPOS ALBUS, POTENTILLA GLANDULOSA.

Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

Comments:
OBSERVED BY C. ODEGARD: ELK TRACKS COMMON IN BARE SOIL, CAUSING GRADUAL DOWNSLOPE SOIL MOVEMENT.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

July 18, 1995

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.075
Element occurrence type:

Survey site name: ROBBINS GULCH
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: ROBBINS GULCH

Township:	Range:	Section:	TRS comments:
002N	020W	03	E2; 02W2

Precision: S
Survey date:
First observation: 1994-08-30
Last observation: 1994-08-30
Elevation: 5400 - 5700
Slope/aspect: 25-50% / SW,S,SE
Size (acres): 5

Location:
TAKE HIGHWAY 93 CA. 8 MILES SOUTH OF DARBY, CA. 0.75 MILE BEYOND THE CONNER CUTOFF, AND TURN LEFT ON ROBBINS GULCH ROAD (#446). POPULATION IS ON DRY SLOPES BEGINNING A MILE UP THE ROAD AND CONTINUING UP ROAD #5612A. PLANTS ARE GENERALLY ABOVE ROAD AND OCCASIONALLY IN ROADCUT.

Element occurrence data:
95-100 PLANTS, 5 SUBPOPULATIONS. 40% FLOWERED THIS YEAR AND HAVE SINCE DISPERSED THEIR SEEDS.

General site description:
OPEN, DRY, LOWER, MID, UPPER DISSECTED MOUNTAIN SLOPES. SANDY, HIGHLY WEATHERED GRANITICS, ULTIC HAPLOXEROLLS SOILS. ASSOCIATED SPECIES: PINUS PONDEROSA, BALSAMORHIZA SAGITTATA, AGROPYRON SPICATA, FESTUCA IDAHOENSIS, LITHOSPERMUM RUDERALE, KOELERIA CRISTATA, CENTAUREA MACULOSA, ACHILLEA MILLEFOLIUM, SYMPHORICARPOS ALBUS, PURSHIA TRIDENTATA, PSEUDOTSUGA MENZIESII.

Land owner/manager:
BITTERROOT NATIONAL FOREST, DARBY RANGER DISTRICT

Comments:
OBSERVED BY C. ODEGARD AND L. PIETARINEN. ROADS, DEER/ELK TRAILS, COWS. A FEW WIDELY-SCATTERED STEMS GRAZED.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.076
Element occurrence type:

Survey site name: SAWDUST GULCH
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: FRENCH BASIN

Township:	Range:	Section:	TRS comments:
002N	019W	27	SW4, SE4; 28 SE4NE4

Precision: S
Survey date:
First observation: 1995-06-21
Last observation: 1995-06-21
Elevation: 4600 - 4800
Slope/aspect: 15% / SW
Size (acres): 1

Location:
FROM HWY 93, TAKE EAST FORK ROAD SEVERAL MILES TO FRENCH BASIN ROAD, THEN DRIVE NORTH A COUPLE MILES TO THE MOUTH OF SAWDUST GULCH. SITE NEAR ROAD ON NORTH SIDE OF GULCH.

Element occurrence data:
73 PLANTS, 4 SUBPOPULATIONS. 18 BEGINNING TO FLOWER, 43 VEGETATIVE. 25 HAD PRIOR YEAR'S FLOWERING STEMS PRESENT.

General site description:
OPEN, DRY LOWERSLOPE UNGLACIATED ROLLING HILLS. FINE GRAVELLY SOIL, GRANITIC PARENT MATERIAL. FESTUCA IDAHOENSIS/AGROPYRON SPICATUM HABITAT TYPE. ASSOCIATED SPECIES: CENTAUREA MACULOSUA, FRAGARIA ALBICAULIS, PENSTEMON ALBERTINUS, GILIA AGGREGATA, ASTRAGALUS INFLEXUS, ERIOGONUM OVALIFOLIUM, ARABIS HOLBOELLII, PINUS PONDEROSA, ALYSSUM DESERTORUM, BROMUS TECTORUM.

Land owner/manager:
BITTERROOT NATIONAL FOREST, SULA RANGER DISTRICT
CONSERVATION EASEMENT: THE NATURE CONSERVANCY

Comments:
OBSERVED BY C. ODEGARD. SITE 40 FEET UPSLOPE OF ROAD AND APPEARS TO HAVE BEEN SEVERELY BULLDOZED IN THE DISTANT PAST. ONE STEM GRAZED; LARGE COW HERD NEARBY.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

MONTANA NATURAL HERITAGE PROGRAM
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3N0.077
Element occurrence type:

Survey site name: HUGHES CREEK
EO rank:
EO rank comments:

County: RAVALLI

USGS quadrangle: ALTA

Township:	Range:	Section:	TRS comments:
002S	022W	35	SE4

Precision: S
Survey date:
First observation: 1995-07-11
Last observation: 1995-07-11
Elevation: 6400 -
Slope/aspect: 50% / SSW
Size (acres): 5

Location:
TAKE WEST FORK ROAD SOUTH TO ALTA, AND TURN EAST ON HUGHES CREEK ROAD. TAKE FIRST ROAD NORTH (LOOKOUT MOUNTAIN ROAD). PLANTS ARE LOCATED JUST BEFORE FOURTH SWITCHBACK (AT JUNCTION OF FS RD 5694), BOTH ON LOWER AND UPPER ROAD OF SWICHBACK.

Element occurrence data:
CA. 30 PLANTS, 80% FLOWERING.

General site description:
OPEN, DRY DISSECTED MOUNTAIN MIDSLOPE. ULTIC HAPLOXEROLLS, QUARZITE PARENT MATERIAL. PINUS PONDEROSA/AGROPYRON SPICATUM COMMUNITY TYPE. ASSOCIATED SPECIES: BALSAMORHIZA SAGITTATA, AND OTHERS

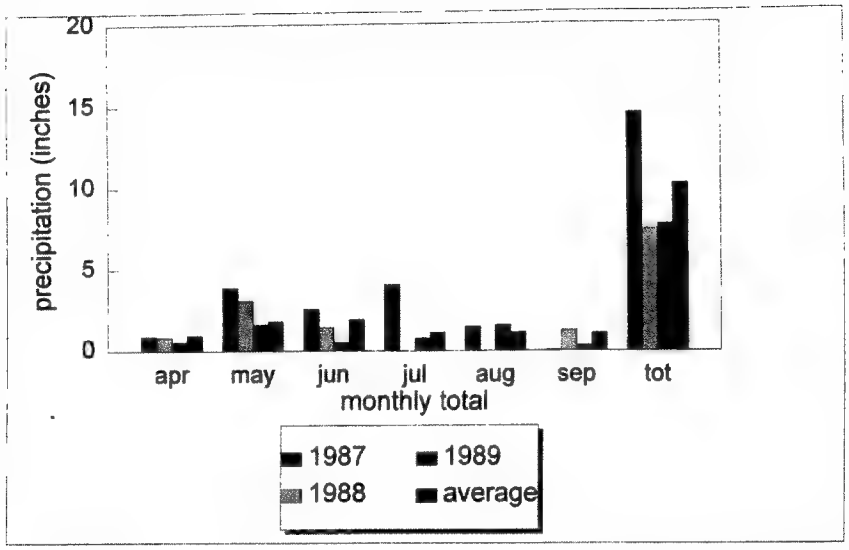
Land owner/manager:
BITTERROOT NATIONAL FOREST, WEST FORK RANGER DISTRICT

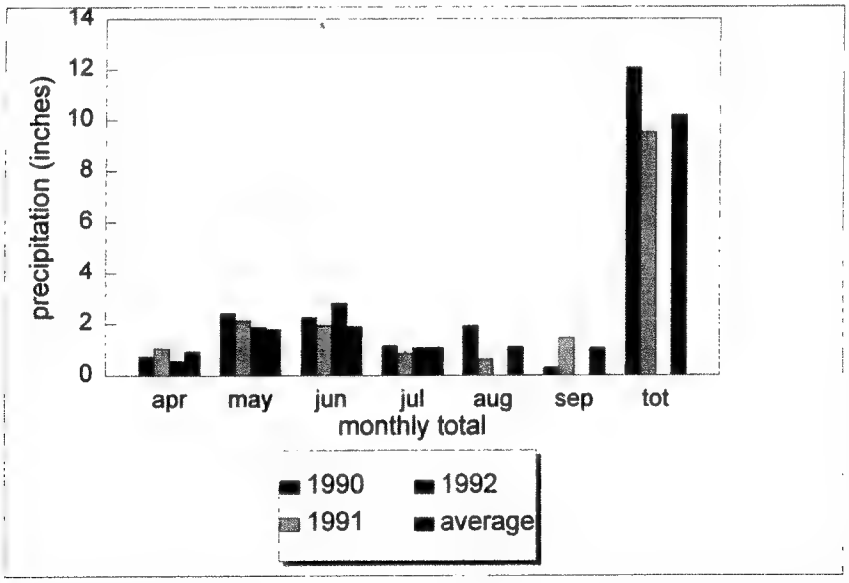
Comments:
OBSERVED BY LINDA PIETARINEN AND KEN MCBRIDE. SOME PLANTS GROWING IN ROADCUT OF LOGGING ROAD.

Information source: SENSITIVE PLANT COORDINATOR, BITTERROOT NATIONAL FOREST, 316 NORTH 3RD STREET, HAMILTON, MT 59840.

Specimens:

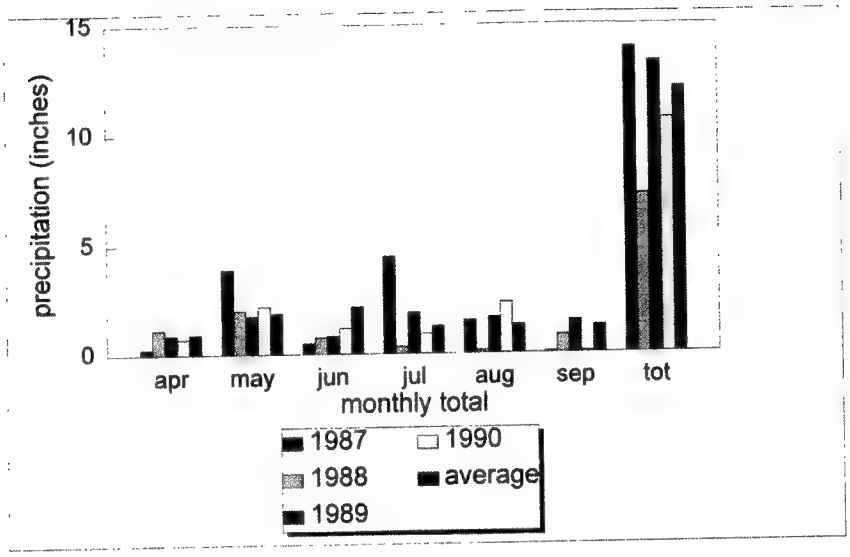
Appendix C.

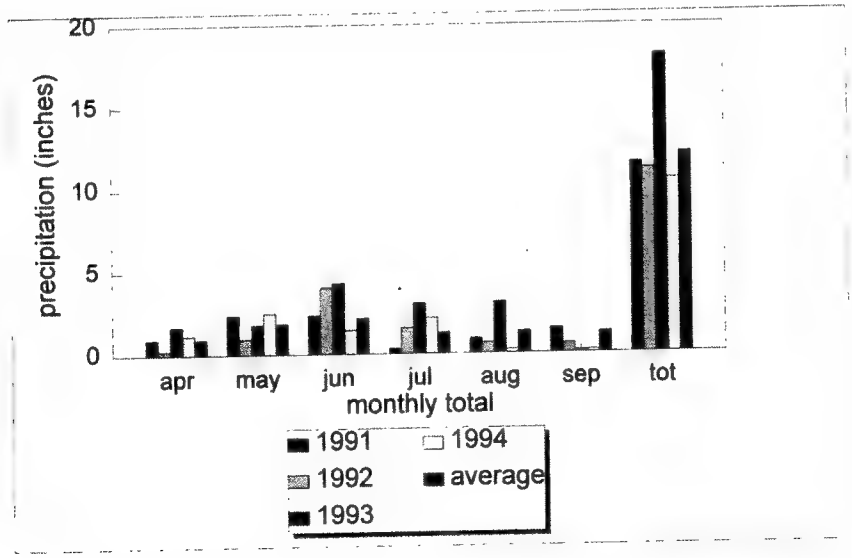




Precipitation, Dillon Montana, 1987-1992, compared to the 30+ year average. Note that values for August, September and the yearly total are missing for 1992.

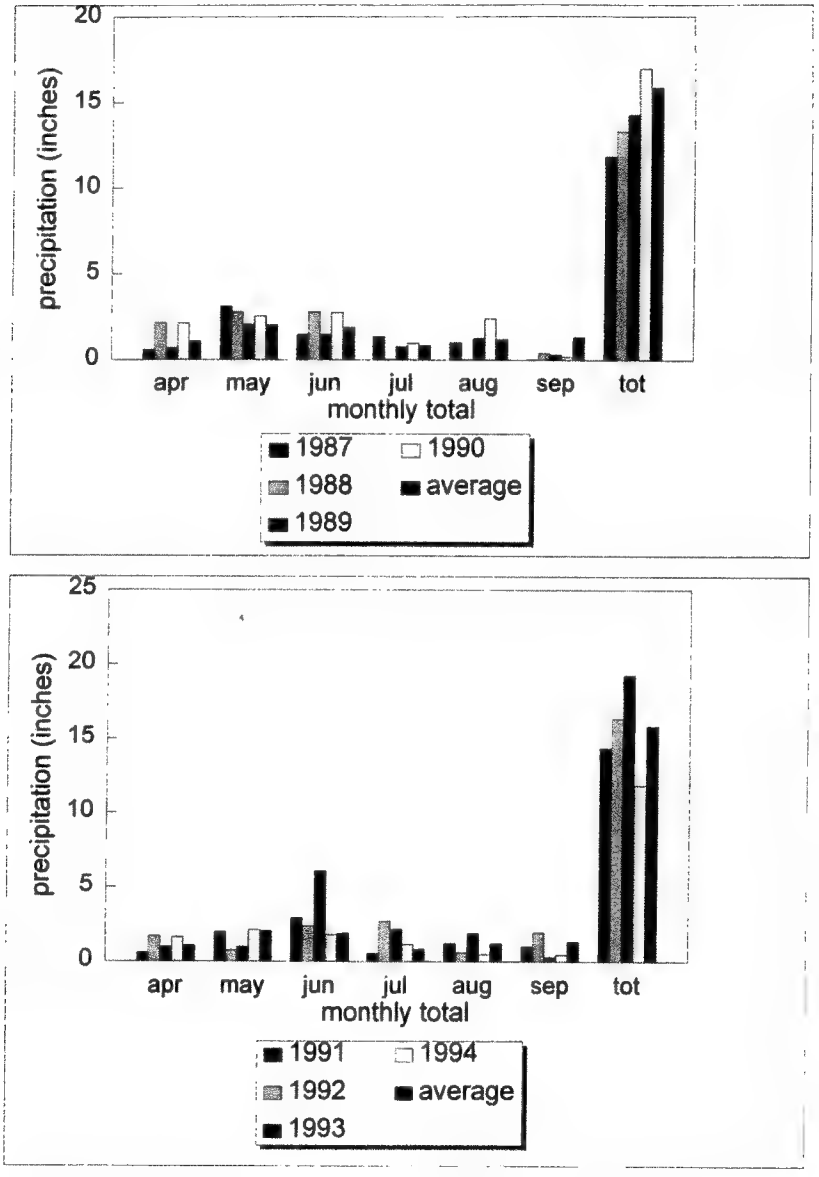
Appendix D.





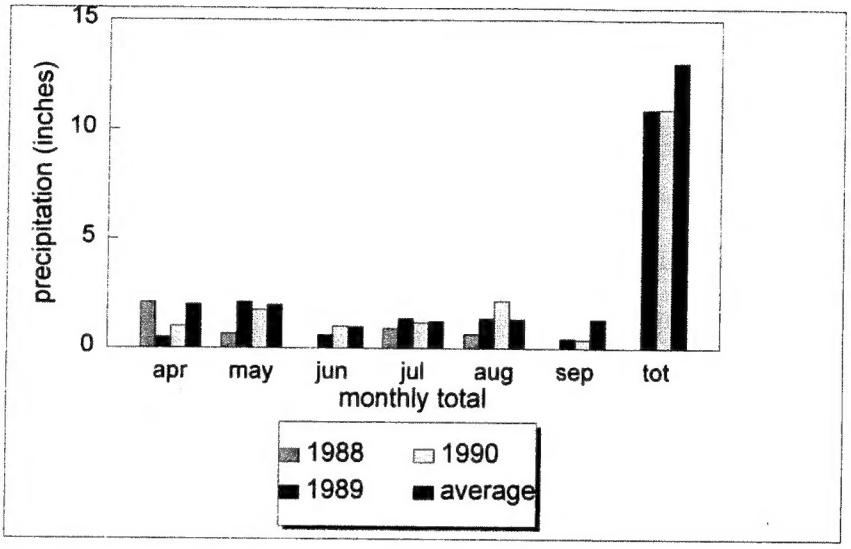
Precipitation, Butte Montana, 1987-1994, compared to 30+ year average.

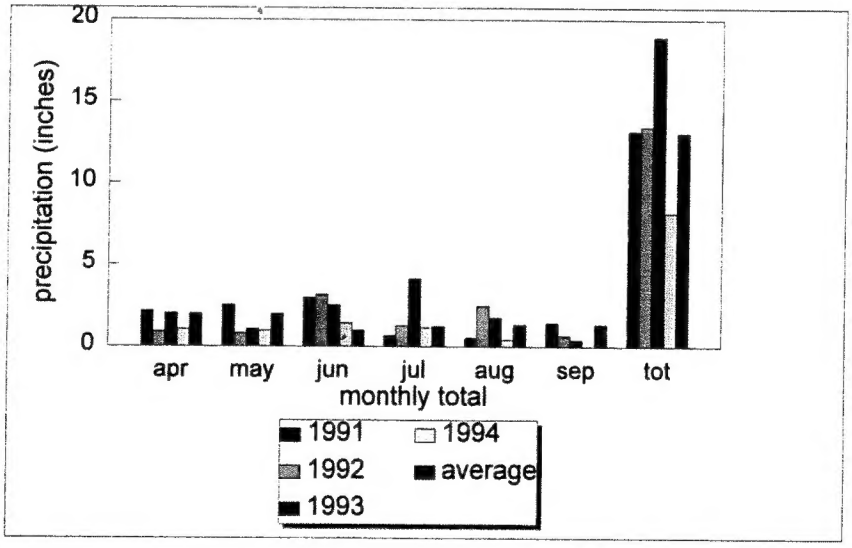
Appendix E.



Precipitation for Darby Montana for 1987-1994, compared to the 30+ year average.

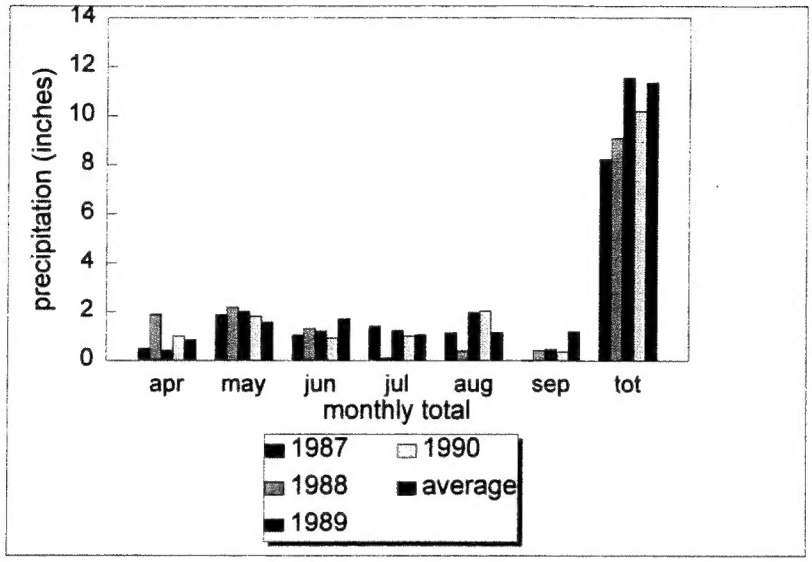
Appendix F.

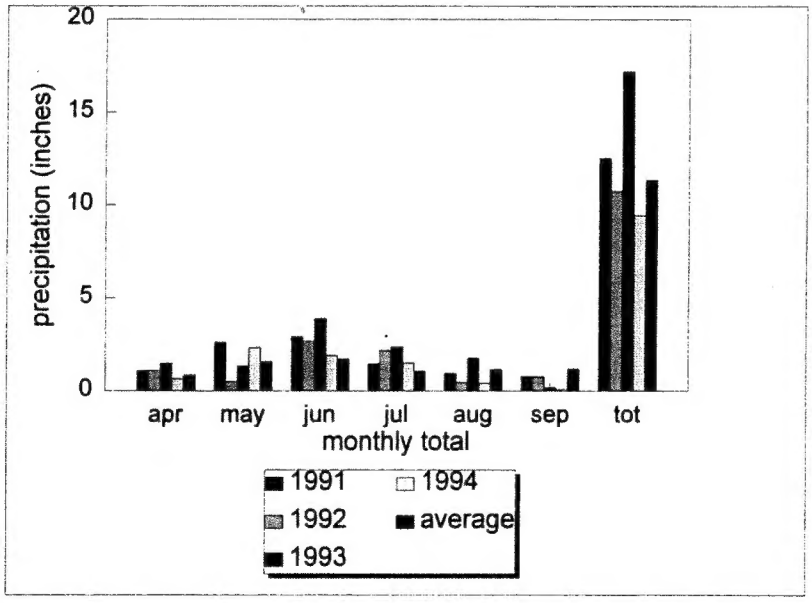




Precipitation, Jackson Montana, 1988-1994, compared to the 30+ year average. Note that the 1988 values for September and for the yearly total are missing.

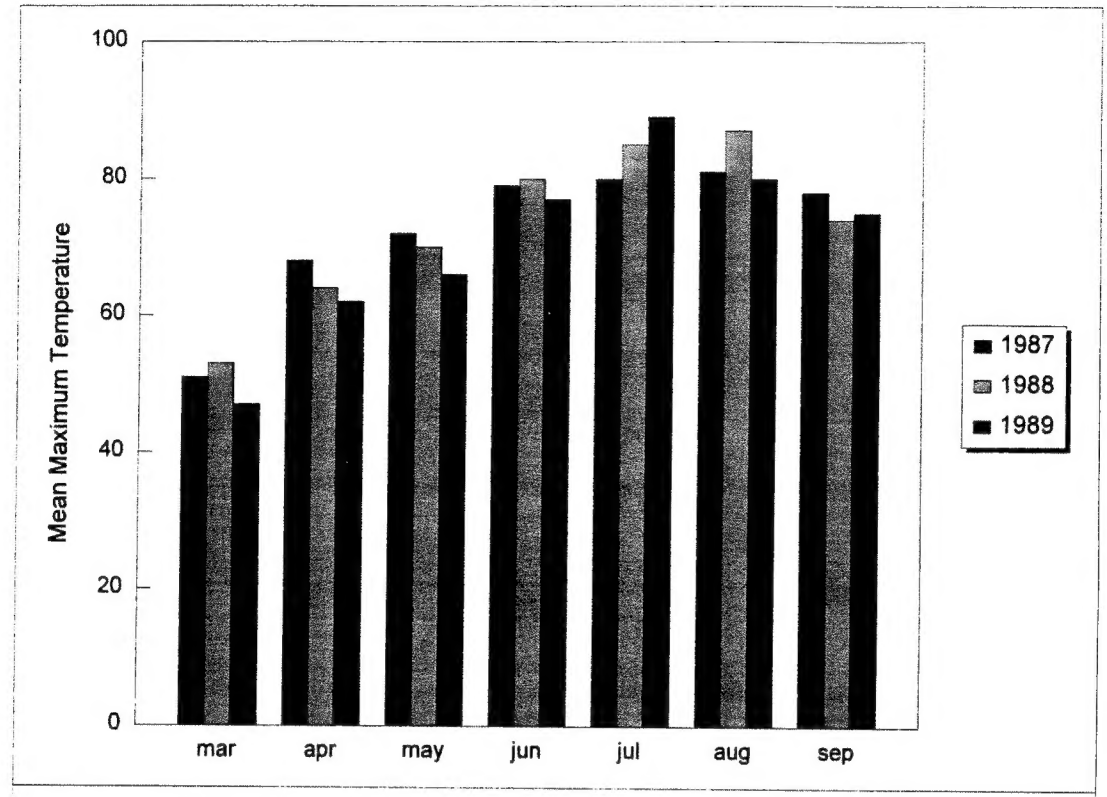
Appendix G.

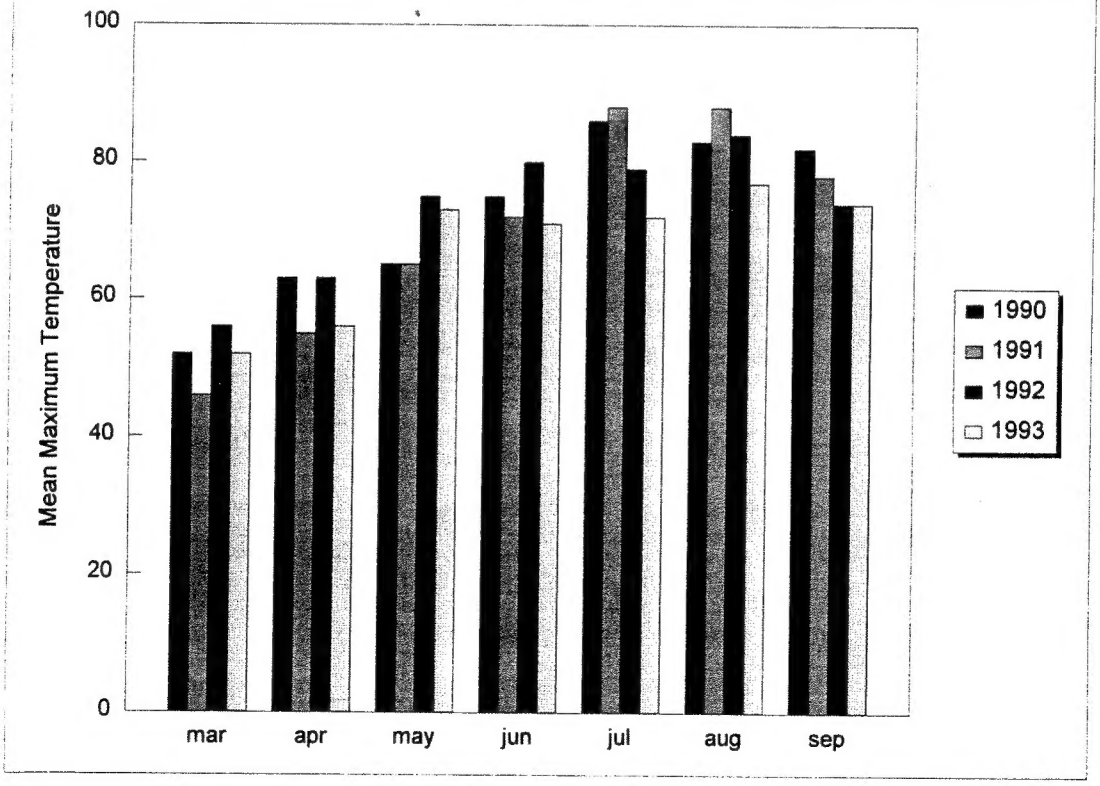




Precipitation, Wisdom Montana, for 1987 to 1994, compared to the 30+ year average.

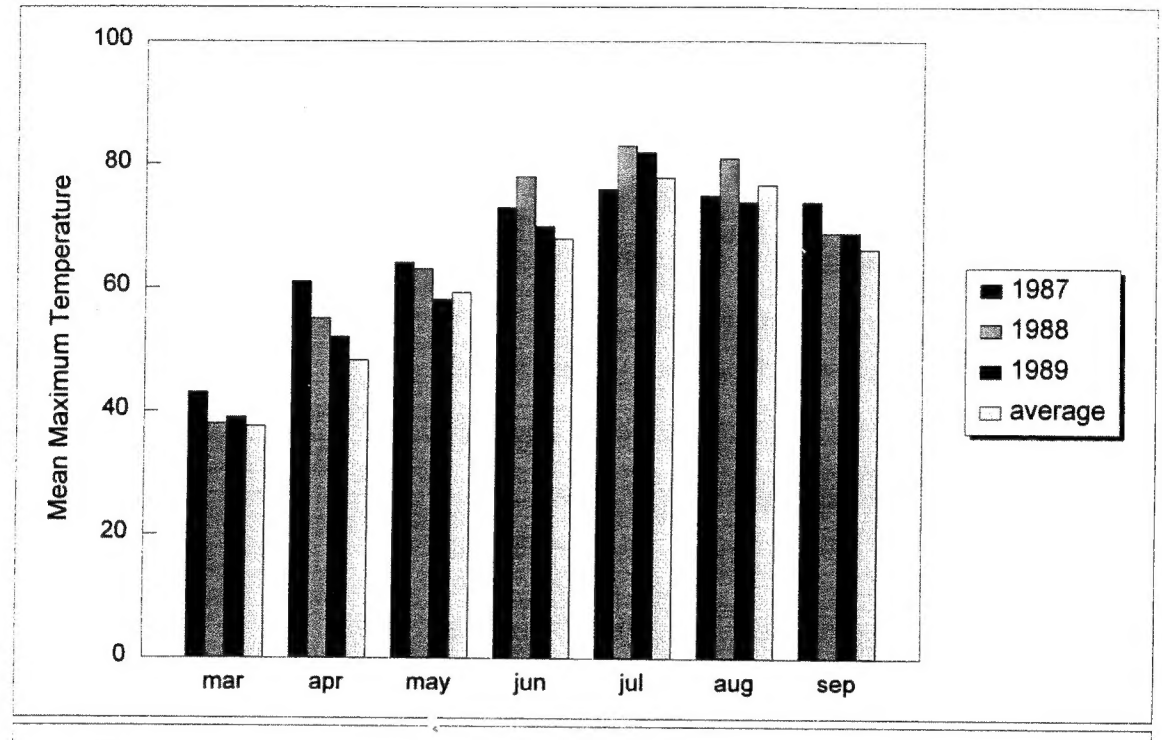
Appendix H.

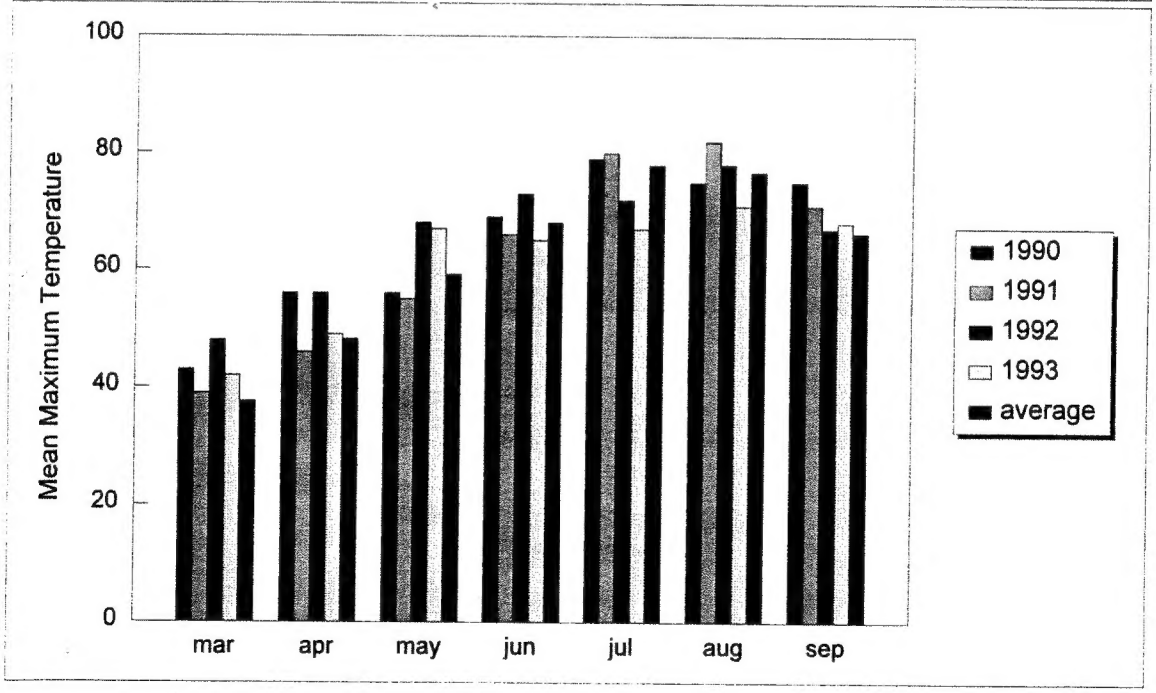




Mean monthly maximum temperature for March through September, Darby Montana. Means are based on maximum daily temperature.

Appendix I.





Mean monthly maximum temperature for March through September, Wisdom Montana. Means are based on maximum daily temperature. Average is the 30 year average for the station.